

N-SERIES

CODA
CODA AUDIO





Big Things - Small Packages

Comprised of four products, the N-SERIES takes its name from the word nano, presenting itself as a range of flexible, lightweight and small systems with the efficiency and power to rival much larger and heavier loudspeaker systems.

Targeted towards a variety of small-to-medium size applications, the series boasts the inclusion of unique DAC (Dynamic Airflow Cooling) technology for effective cooling, and optimised CODA Audio - manufactured DDP / RDC drivers – ensuring fidelity, frequency range, and versatility.

Using these revolutionary technologies, the N-SERIES drastically improves its sonic qualities by drastically reducing intermodulation distortion, resulting in increased efficiency in the drivers themselves, which in turn increases the efficiency of the system, all the while reducing the size and weight of a system – and crucially, system ownership costs.



N-RAY



SCN-F



N-APS



N-SUB



Dynamic Airflow Cooling (DAC)

Putting an immense amount of power into a compact enclosure required a new design and a new thermal concept: the front baffle and vents are made from aluminium with all drivers mounted into it. These aluminium vents are optimised to maximise airflow, increasing the thermal capacity of the system.

Applying more power increases the airflow in the vents, conducting more heat away from the drivers, and distributing that heat outside the enclosure. The DAC technology dramatically improves heat dissipation, doubling the power handling and the maximum SPL capability compared to a conventionally cooled system.



Instafit Magnetic Coupler

Couplers for N-SERIES address a common issue present in many other line arrays - inconsistencies in horizontal directivity. It can be seen with many 'traditional' designs that the horizontal beam width varies in the MF / HF region. This is typically caused by the MF / HF driver placement, together with the use of more traditional waveguides and horns.

Couplers fundamentally solve this, by summing the energy from all transducers, to perform as a single source. This is achieved without any phase destruction, providing a perfectly coherent and uniform wavefront. They can be interchanged quickly and without tools to achieve various horizontal dispersions - narrow, wide, and asymmetric.



Quick Release Grille no tools required



DDP Driver

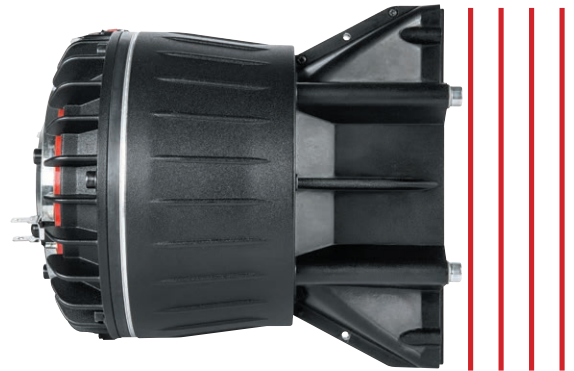
CODA's patented Dual Diaphragm Planar wave driver and Coupler technology is now at the heart of the N-RAY, AiRAY and ViRAY line array systems.

Discarding the traditional dome diaphragm compression driver design, CODA Audio utilises a two-way coaxial system employing two concentric annular ring diaphragms. Each diaphragm covers a smaller frequency range for increased power handling, high dynamics and extremely low distortion. This Dual Diaphragm Planar wave driver technology provides several advantages:

Fidelity: Unlike dome diaphragms, annular ring diaphragms feature wings that are smaller than the wavelengths they reproduce. The diaphragms move in phase, creating far less audible and measurable intermodulation distortion than speakers equipped with traditional drivers, especially at high frequencies.

Frequency Range: The outer wings of planar ring diaphragms extend the radius of the diaphragm when compared to traditional compression drivers of equal voice coil size. This greater surface area allows for a lower crossover point and more consistent overall directivity.

Sensitivity: CODA DDP wave drivers are far more efficient than traditional compression wave drivers. They boast 3–5 dB higher sensitivity than the top quality conventional alternatives. The low-profile annular ring diaphragms have a double surround supporting a reduced moving mass resulting in a much stiffer and far more efficient transducer with no breakup modes.



RDC Driver

At the heart of N-APS is a string of patented technologies, the unique RDC (Ring Diaphragm Curved-wave-driver) – similar to CODA's planar wave driver, but with a bit of a twist, in that the wavefront is curved at 20°. This ultimately means there is very little distortion, and no reshaping is required, so it offers extraordinary sonic precision. As a result, when you put more N-APS together, they perform as one single cabinet, with no interference whatsoever.



Sensor Control

The performance of subwoofers can be unpredictable due to the nonlinear distortion produced by the subwoofer itself, especially under high-power conditions. CODA's SCN-F low frequency extension like other sensor controlled subwoofers has been designed to overcome this problem.

The transducers in CODA's sensor-controlled low frequency elements contain an integrated velocity sensor that measures LF diaphragm movement in real time and compares it with the audio input signal. This proprietary sensor-controlled technology is a self-optimising, closed feedback loop that precisely determines how much power the driver needs to accurately reproduce the original audio signal.

Any distortion produced by the driver or the enclosure is instantly corrected. The result is a line of well-behaved, high-fidelity, high powered CODA subwoofers that allow the system designer to approach low frequency reinforcement with the same detail, sophistication, and confidence as the rest of the audio spectrum.

Audio Signal Input



N-RAY

N-RAY is an ultra compact, three-way line array that brings the benefits of the AiRAY technology into a shallow, lightweight cabinet for theatres, performing arts centres, and corporate events.

Incorporating the latest in driver and system design technology, this next generation product boasts twice the power handling of other systems, significantly increasing low frequency output and long term SPL capability.

N-RAY delivers high-fidelity sound with a large dynamic range and extended low frequency, as well as incredible flexibility thanks to its variable horizontal dispersion. The box is ideally suited for a variety of small to medium size applications.

The system contains two 6.5 inch ultra low distortion neodymium drivers and a 6 inch DDP driver, while the SCN-F 15 inch sensor controlled low frequency extension provides additional headroom with exceptional dynamic range and tight punch.

Offering a phase linearity similar to AiRAY, a 60 Hz - 22 kHz (-6 dB) frequency range and high power handling of 1000 W, N-RAY outputs a power, frequency and transient response that belies its small size.

N-RAY has a variable horizontal coverage of 90°, 120° or asymmetric 105°, variable vertical curving 0°, 1°, 2°, 3° to 12° in 1° steps, and features an integrated three-point rigging system for flown or ground stacked arrays compatible with SCN-F – 15 inch sensor controlled low frequency extension.

The line array facilitates system integration with LINUS loudspeaker management amplifiers, while a hybrid wooden / aluminium enclosure with polyurea coating ensures extreme durability and water protection.





SCN-F

Targeted towards theatres, houses of worship, corporate events, sport venues, and live sound venues, the SCN-F is a 15 inch sensor controlled low frequency extension system operating from 35-200 Hz, overlapping both the low range of N-RAY and the SCV/SCP subwoofers – providing more energy and control in the lower range of the system.

The 15 inch driver contains an integrated velocity sensor that measures the diaphragm movement in real time. The LINUS14 compares this with the audio input signal and adjusts its driving current to correct any driver inaccuracies – the key advantage being a very extended and controlled response.

SCN-F is designed to work exclusively with dedicated CODA Audio amplifiers and racks as an integrated solution for DSP and sensor control, amplification, network remote control, and diagnostics, ensuring optimal performance and protection.

SCN-F is equipped with an extremely long excursion neodymium ultra-low distortion driver. Three aluminium shorting rings reduce intermodulation distortion, minimising induction variation whilst reducing thermal compression, dramatically reducing the distortion of a typical low frequency driver at larger excursions.

Weighing just 33 kg, and boasting a power handling of 1500 W AES, the SCN-F extends the LF throw capability of the N-RAY system significantly. The flying system allows for vertical curving of the SCN-F too, ensuring perfect time alignment with N-RAY when flown behind or to the side.





Implementation versatility

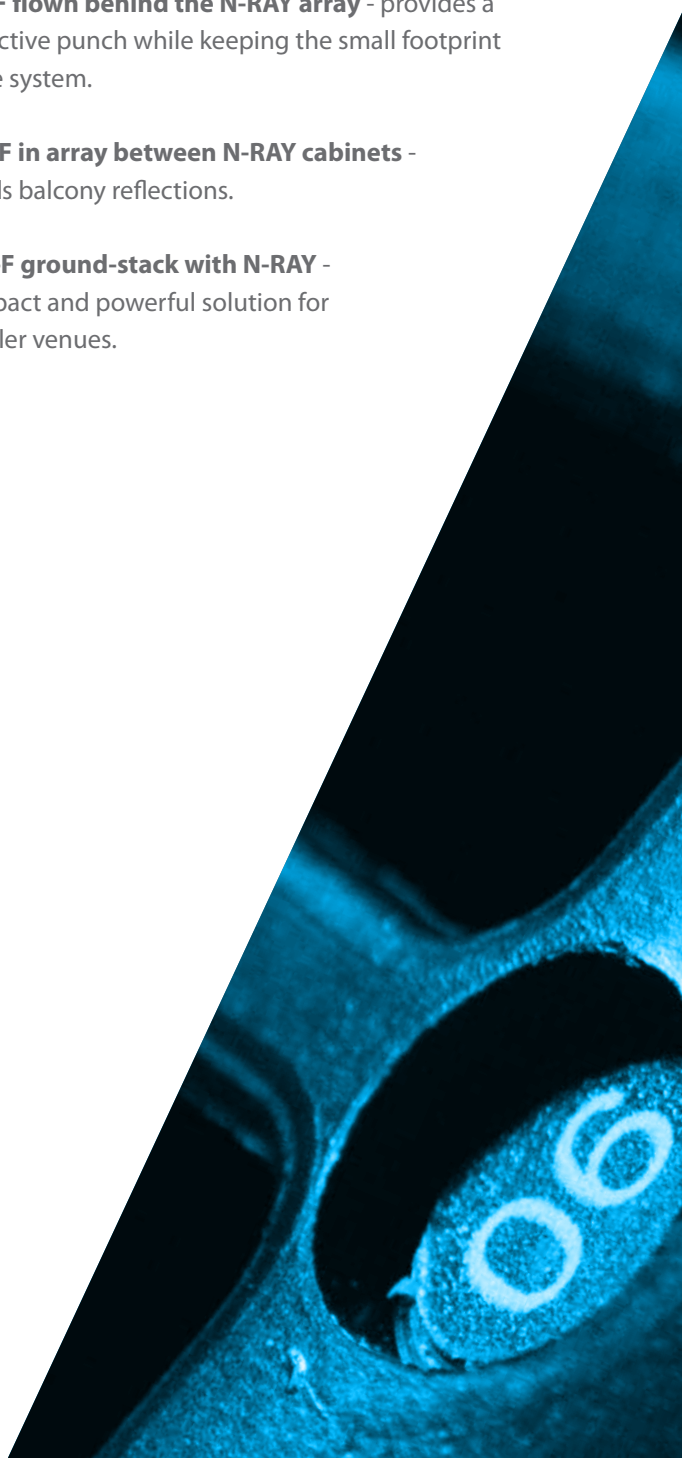
SCN-F flown on the top of N-RAY - increases the array length and enlarges the system long throw capability.

SCN-F flown beside N-RAY - improves the system horizontal directivity in the lower frequency range.

SCN-F flown behind the N-RAY array - provides a distinctive punch while keeping the small footprint of the system.

SCN-F in array between N-RAY cabinets - avoids balcony reflections.

SCN-F ground-stack with N-RAY - compact and powerful solution for smaller venues.





N-APS

N-APS is the smaller sibling of APS (Arrayable Point Source), yet benefits from new technology which allows it to compete in terms of output with loudspeakers many times its size. N-APS is an ultra-compact 2 x 6.5 inch, two-way arrayable point-source that combines the versatility of a point-source loudspeaker with the 'arrayability' of a line array, creating a unique category of sound reinforcement system for small to medium size venues.

With the latest in driver and system design technology, N-APS delivers twice the power handling as well as significantly more low-end compared to other systems. Created to be a sound designers' dream problem solver, the ultra hi-fidelity N-APS delivers large dynamic range, incredible flexibility, and variable horizontal directivity.

N-APS allow users to deploy systems which are in real terms, half or smaller in size to the competition. The commercial advantage of this is best demonstrated in trucking: very little truck space is taken up by the system.

N-APS offers a distinct commercial advantage of performing exactly the same as larger elements, but with a tiny footprint. N-APS is a 12 Ohm enclosure, only requiring one amplifier channel. Three of them can be connected to one amplifier channel, meaning 12 can be powered by a 2U amplifier. Not only are the loudspeakers smaller, the cabling, amplification and power distribution system is halved in size.

N-APS' Instafit Magnetic Coupler solves a common problem for a line array or arrayable box by summing the energy from all transducers to perform as a single source. It does this without any phase destruction, which allows for a perfectly coherent and uniform wavefront.

Available in 60°, 90°, 120° or asymmetrical horizontal coverage, a key benefit of N-APS is that you can configure it in any way you choose, with no tools required.

The unique Ring Diaphragm Curved-wave-driver means there is very little distortion and no reshaping required, so it offers extraordinary sonic precision. As a result, when you put more N-APS together, they perform as one single cabinet, with no interference whatsoever.

When paired with the CODA LINUS Amplification platform, the N-APS have a ruler flat phase response from 120 Hz upwards. This guarantees seamless integration with other CODA products as part of a bigger system.





RDC

At the heart of N-APS is a string of patented technologies, the unique RDC (Ring Diaphragm Curved-wave-driver) – similar to CODA's planar wave driver, but with a bit of a twist, in that the wavefront is curved at 20°.

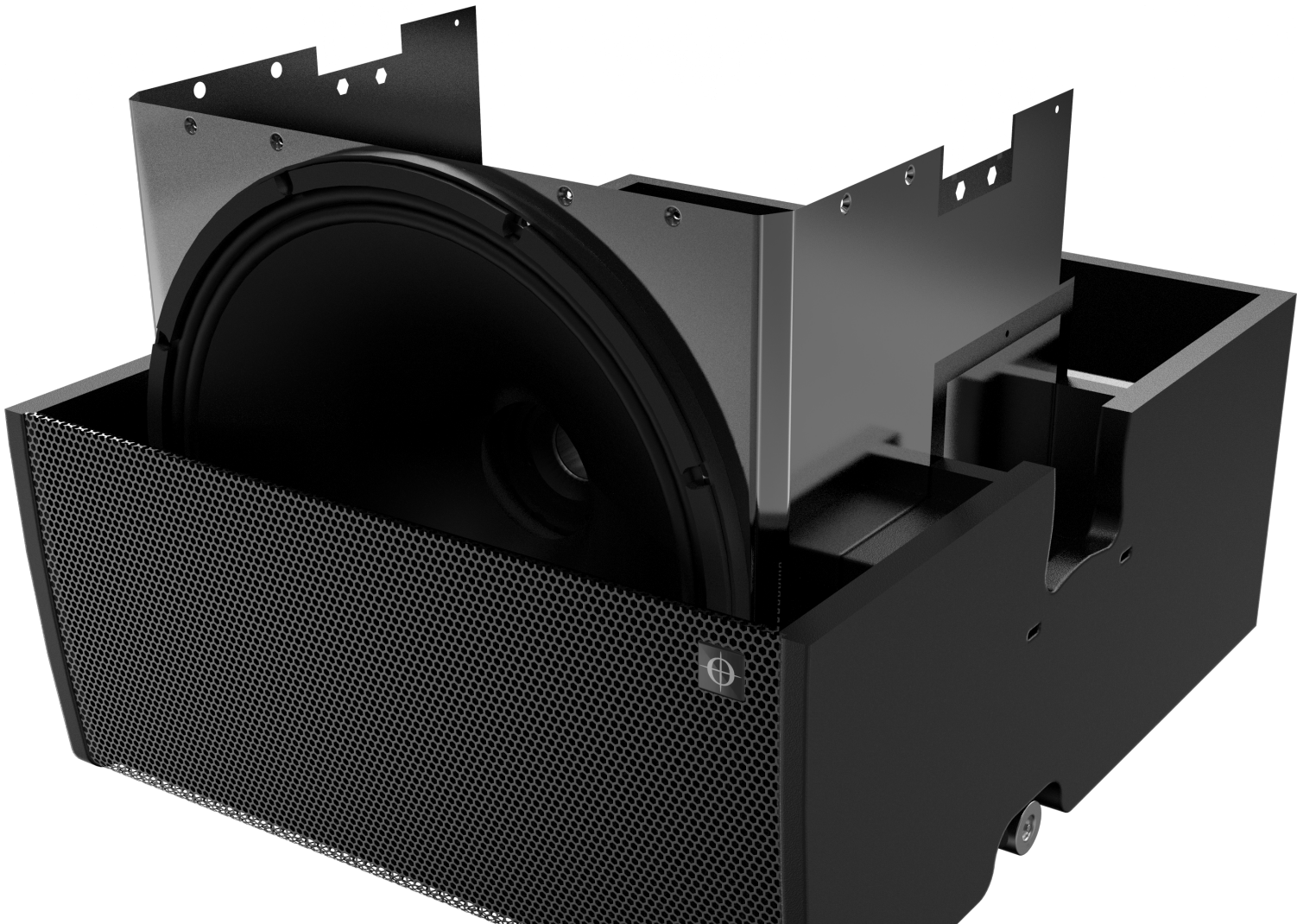
This ultimately means there is no distortion, and no reshaping is required, so it offers extraordinary sonic precision.

N-SUB

N-SUB is a compact 15 inch high output subwoofer, weighing in at just 28 kg. With high power handling of 1,500 W, a maximum SPL of 139 dB (peak), this sub reaches as low as 30 Hz. Like CODA's N-APS, N-SUB benefits from Dynamic Airflow Cooling (DAC) – a smart, unique technology which allows the box to hit very high SPLs while staying completely cool – contrasting traditional sub behaviour, where applying more power generally increases the heat inside, resulting in compressed and distorted audio. In the N-SUB's case, all sonic clarity is retained – it simply gets louder.

The N-SUB is equipped with a long excursion 15 inch ultra low distortion driver. A strong motor delivers extreme high magnetic flux, which makes it super efficient – its 4 inch voice coil ensures ultra linear excursion at a consistent magnetic force. Three aluminium shorting rings reduce induction variation, which in turn minimises intermodulation distortion whilst reducing thermal compression.

The N-SUB is designed to work exclusively with CODA Audio's LINUS Amplifiers as an integrated solution for DSP control, amplification, network remote control and diagnostics – this guarantees optimal performance and protection. Although its primary job is to provide low end reinforcement for N-APS, the N-SUB is also suited for a variety of applications in the touring and installation markets where compact size, high precision and deep, punchy low frequency is needed.



Systems and AMPS

System Solution



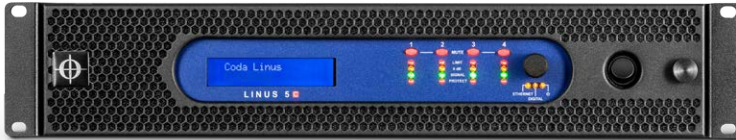
LINUS14D



LINUS10



LINUS10-C



LINUS5-C

CODA Audio's LINUS processing and amplification products are designed to control all CODA Audio loudspeaker systems.

The LINUS platform is perfectly suitable for all types of touring and installation applications. Providing system control, LINUS products can be used for FOH, or monitoring systems, or wherever you need power and processing for your CODA system. LINUS DSP includes factory presets based on FIR and IIR filtering for all CODA Audio loudspeaker systems.

The digital audio distribution via LiNET transmits up to eight digital audio signals over standard CAT-5 cable. The graphical user interface LINUS Control offers an innovative, flexible system design, tuning and monitoring. LINUS Control offers powerful tools for creating, controlling and monitoring any size system.



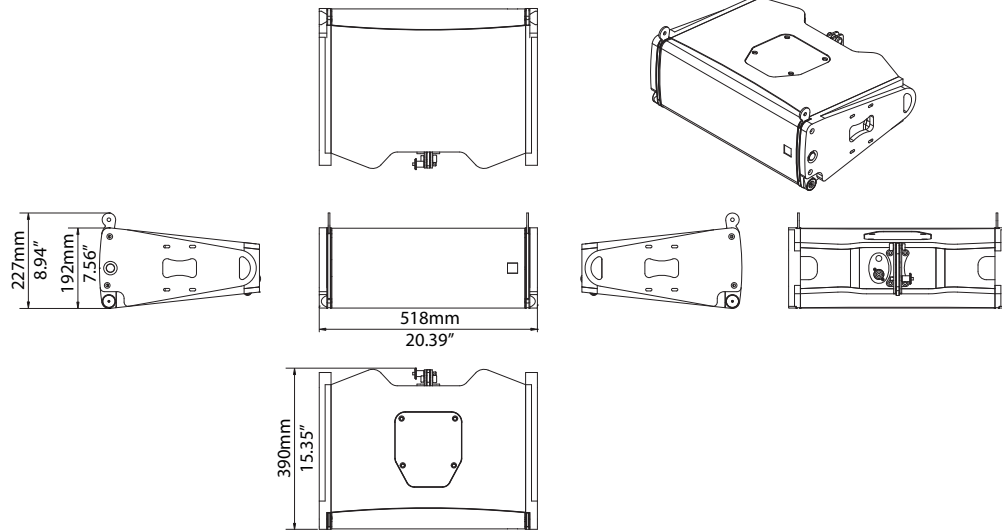
Specifications

	N-RAY	SCN-F	N-APS	N-SUB
Type:	3-way Passive line array module	Sensor controlled bass extension	Ultra-compact Arrayable Point Source	Compact 15" subwoofer
Dimensions (WxHxD):	518 x 192 x 390 mm / 20.39 x 7.56 x 15.35" (518 x 227 x 390 mm / 20.39 x 8.94 x 15.35" incl. hardware)	518 x 418 x 595 mm / 20.39 x 16.46 x 23.43"	518 x 200 x 358 mm / 20.39 x 7.87 x 14.09" (incl. hardware)	518 x 418 x 595 mm / 20.39 x 16.46 x 23.42" (518 x 446 x 595mm / 20.39 x 17.56 x 23.43" incl. hardware)
Net weight:	15 kg / 33.07 lbs	33 kg / 72.75 lbs	12.2 kg / 26.9 lbs	28 kg / 61.73 lbs
Frequency response:	60 Hz – 22 kHz (-6 dB)	35 – 200 Hz (-6 dB)	60 Hz – 20 kHz (-6 dB)	30 Hz – 150 Hz (-6 dB)
Power handling AES / peak (passive):	1000 W / 4000 W	1500 W / 6000 W	1000 W / 4000 W	1500 W / 6000 W
Max. peak SPL (with LINUS14):*	143 dB	139 dB	139 dB	139 dB
Amplification, Cabinets per Amplifier				
LINUS5-C Optimum / Maximum:	N/A	N/A	12/16	N/A
LINUS10-C Optimum / Maximum:	N/A	N/A	12/16	8/12
LINUS14D Optimum / Maximum:	12/16	8/12	12/16	8/12
LINUS10 Optimum / Maximum:	6/10	4/6	6/10	4/8
Dispersion Horizontal:	90°, 120° or asymmetrical 105°	N/A	60°, 90°, 120° or asymmetrical 75° (30°+45°); 90° (30°+60°); 105° (45°+60°)	N/A
Dispersion Vertical:	Array dependent: 0°, 1°, 2°, 3° to 12° in 1° steps	N/A	20°	N/A
Components Low frequency:	2x 6,5" neodymium, water resistant cones, 2" (50.8 mm) voice coil, 500 W (AES) each	15" neodymium ultra-low distortion woofer, 4" (101.6 mm) voice coil	2x 6,5" neodymium, water resistant cones, 2" (50.8 mm) voice coil, 500 W (AES) each	15" ultra low distortion woofer, 4" (101.6 mm) voice coil, 1500 W (AES)
Components Mid/High frequency:	Mid: 3.5" (90 mm) voice coil, 150 W (AES) each High: 1.75" (44.4 mm) voice coil, 80 W (AES) each	N/A	6" / 20° RDC, 1,75" (44.4 <mm) voice coil, 80 W (AES)	N/A
Crossover point:	500 Hz / 6300 Hz passive	N/A	900 Hz passive	N/A
Input Connectors:	2x Neutrik™: 1x Input + 1x Link Cable	2x Neutrik™ NL4MP	2x Neutrik™ NL4MP	2x Neutrik™ NL4MP
Nominal impedance LF / MF+HF:	12 Ω (+2/-2)	8 Ω (+1/-1)	12 Ω (+2/-2)	8 Ω (+1/-1)
Enclosure material:	Hybrid Multiplex / Aluminium	Hybrid - Birch plywood and Aluminium	Hybrid - Birch plywood and Aluminium	Hybrid - Birch plywood and Aluminium
Suspension	Integrated	Integrated, allows curving of 0°, 2.5° or 5°	Integrated	Integrated

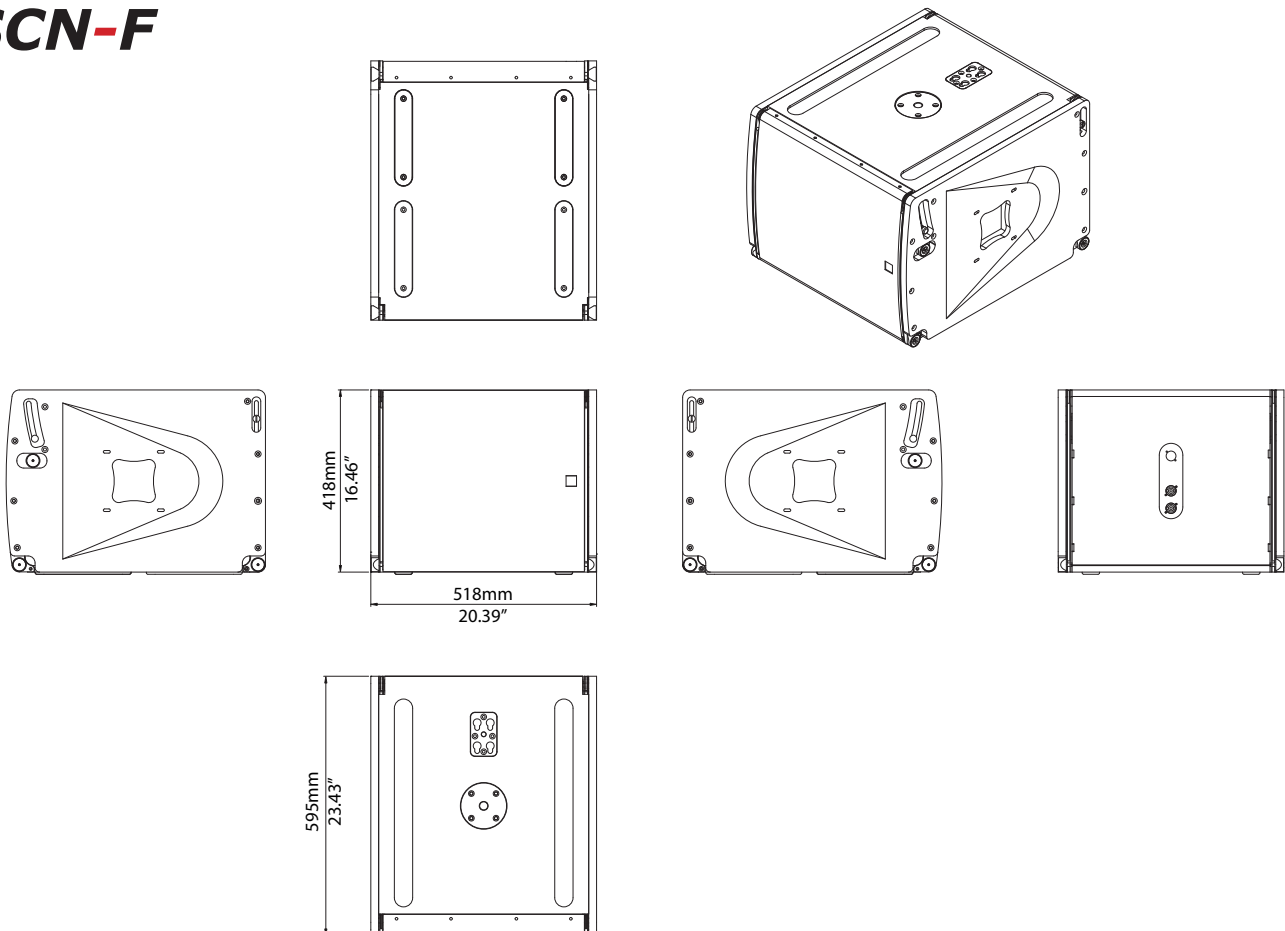
* Pink noise 6 dB crest factor.

Dimensions

N-RAY

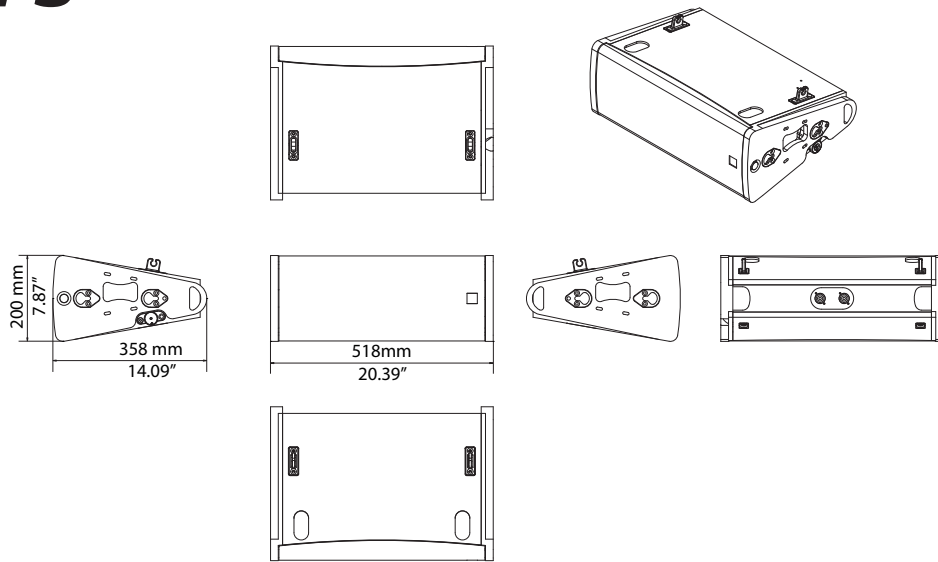


SCN-F

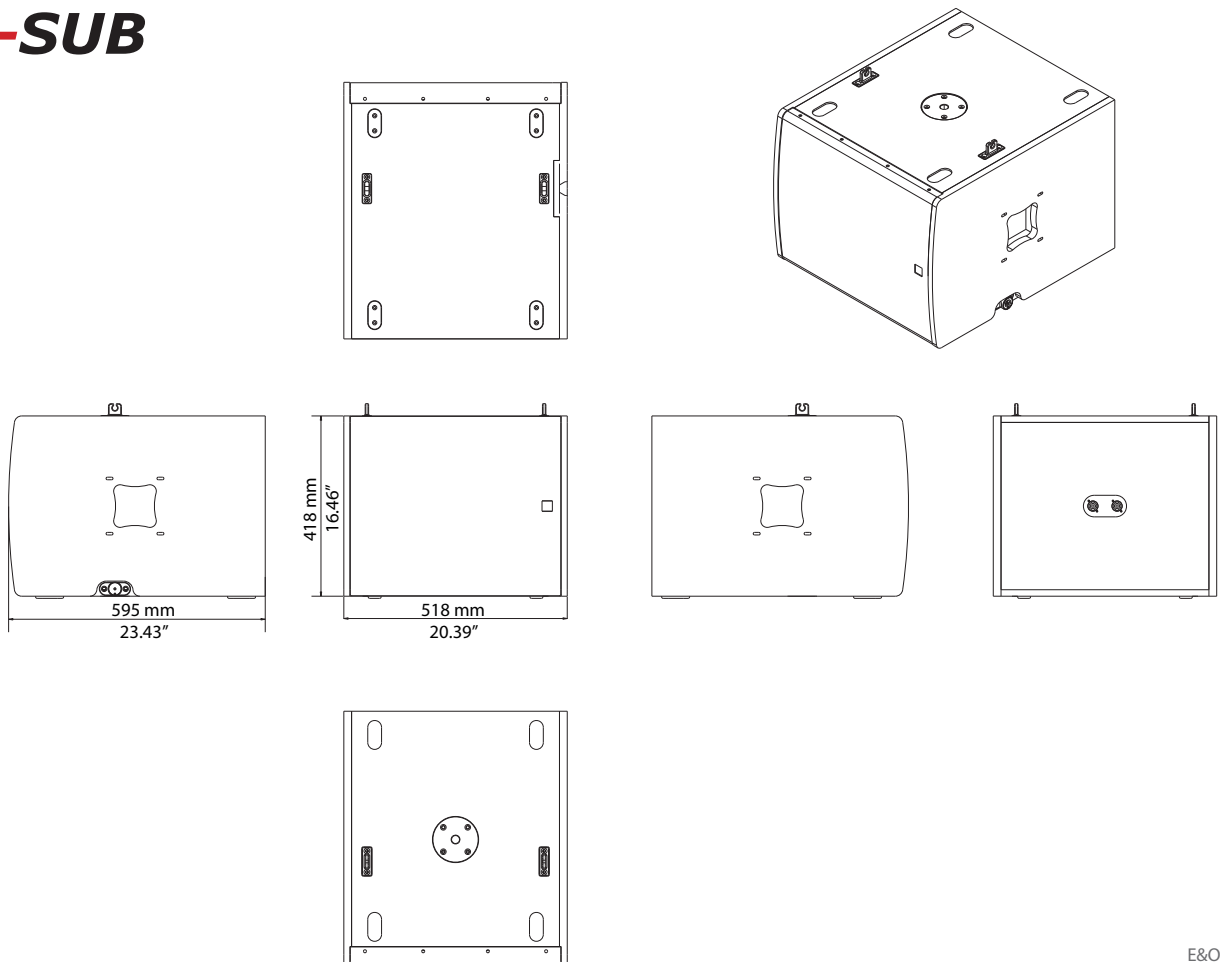


Dimensions

N-APS



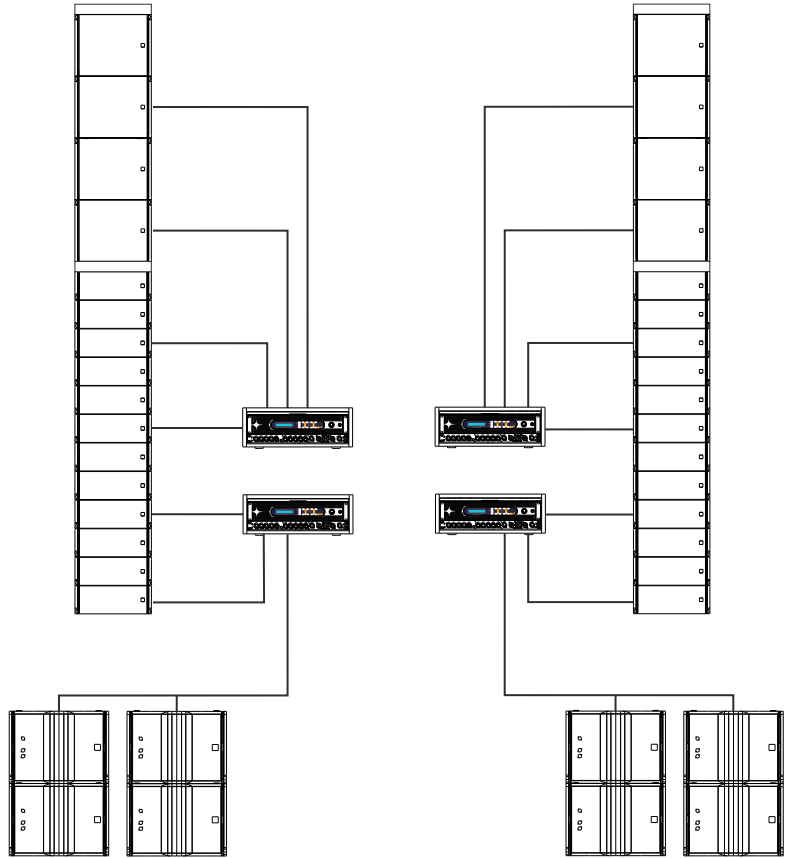
N-SUB



N-RAY System Package

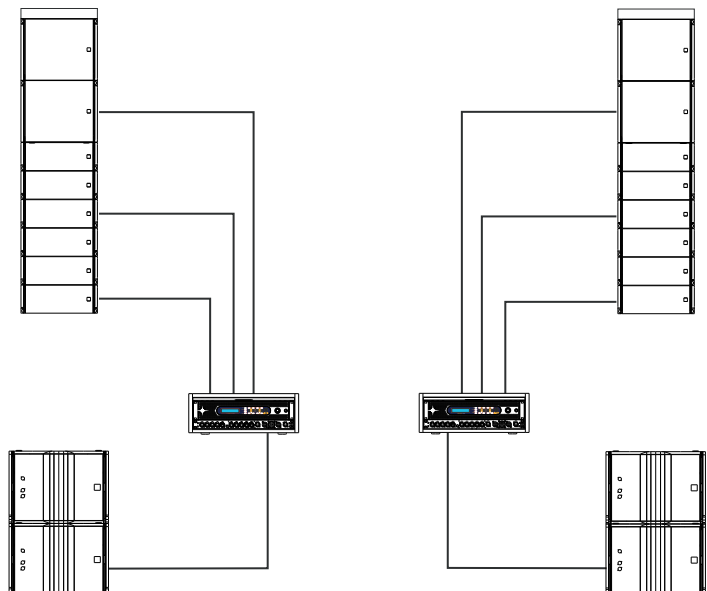
Large System Components:

24 x N-RAY
8 x SCN-F
8 x SCV-F
4 x M-RACK



Small System Components:

12 x N-RAY
4 x SCN-F
4 x SCV-F
2 x M-RACK



CODA

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