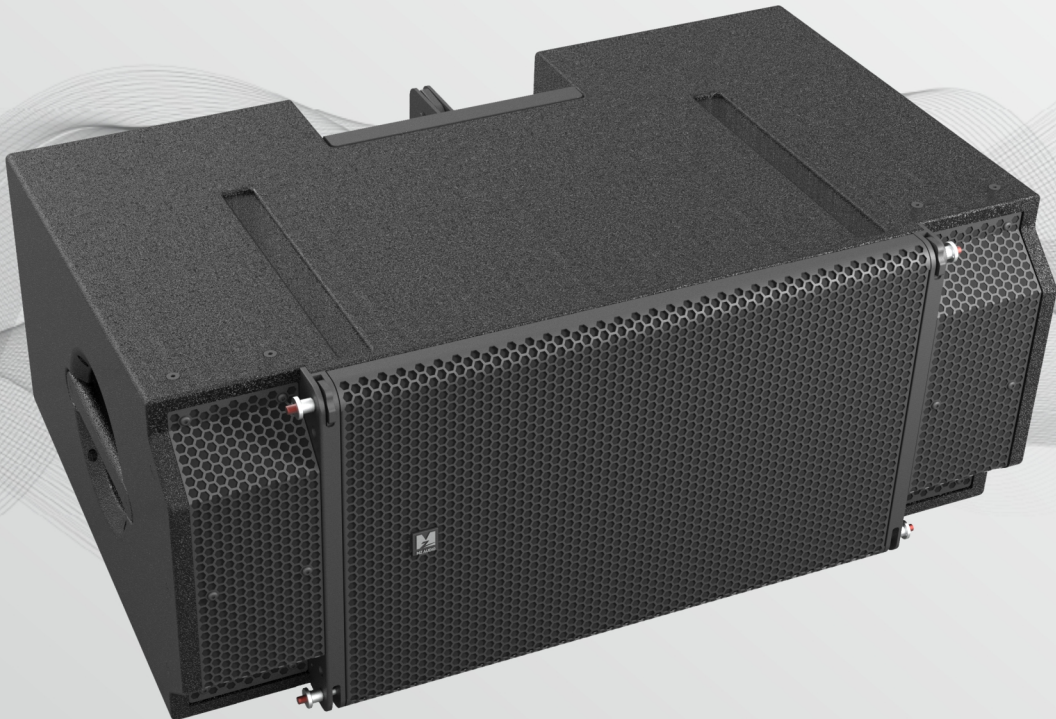




MZ AUDIO



MiniRayl2
Mini Line Array

R&D Technical Approach

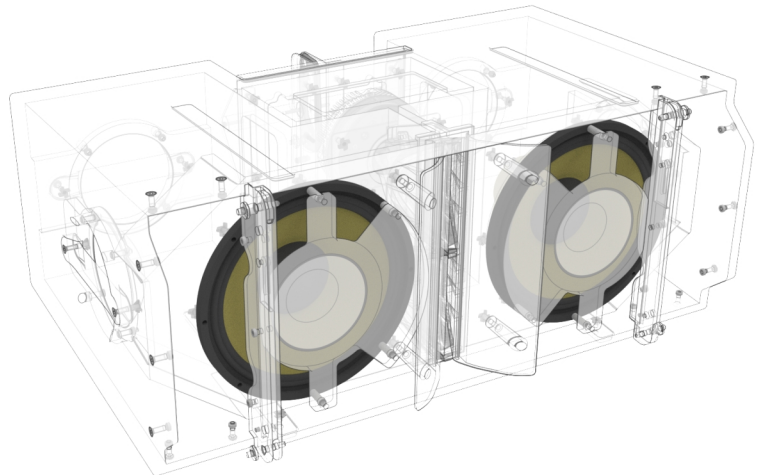
The MiniRay12 builds on the proven success of the MiniRay10 and MiniRay14. While the latter two cover most sound reinforcement needs, owning multiple systems isn't always ideal for rental companies. The MZ Audio team sought a mid-sized system offering large-array SPL and bandwidth to meet broader market demands. After extensive innovation, We retained the validated enclosure design of the MiniRay10 and MiniRay14, and with in-depth optimization, developed the MiniRay12 - a dual 12" three-way line array system.

Compact Size, Massive Power

The cabinet is controlled at a width of 0.9m - significantly narrower than typical dual 12" three-way line array systems. Weighing only 57 kg, it delivers a maximum SPL of 145 dB, matching or even exceeding that of most large-format dual 15" three-way line arrays. The low-frequency extension reaches down to 45 Hz, providing ample, punchy, and elastic bass response.

45 Hz Resonant Frequency

To achieve low-frequency output that matches the mid and high sections, a dedicated 12" woofer has been developed. Featuring a 75 mm aluminum flat-wire voice coil, a highperformance long-excursion neodymium magnetic circuit, and an oversized dual spider, the driver achieves a resonant frequency as low as 45 Hz. It delivers a sensitivity of 99 dB, with an AES power rating of 400 W. To optimize upper-bass performance, a phase plug is implemented to raise sensitivity around 500 Hz, ensuring seamless integration with the 100 mm mid-range driver.



MiniRay12

Key Features

- 3-way, 2-Channel Driven
- Coaxial mid-high driver, HF extension >18 kHz
- Maximum SPL 145 dB
- Hi-End grade crossover
- Preangle adjustable rigging hardware

3-Way | 2-Driven | Hi-End Crossover

For simplified operation, the mid-high section uses a passive crossover, while the dual woofers are driven separately via external DSP. Woofers are series-wired at 8Ω per box, allowing two boxes per amp channel at 4Ω- delivering 3200W to four woofers (rated 1600W total) for high headroom and safety.

Standard NL4 connectors and 4-core cables ensure easy setup. The built-in passive crossover eliminates wiring errors that could damage the HF driver. Hi-End grade German Mundorf oil capacitors and air-core OFC inductors (resistor-free) minimize loss while adding a "Hi-Fi" character.



Coaxial Mid-High Design

MiniRay12 shares the same coaxial mid-high compression driver as MiniRay10, with two drivers per enclosure (similar to MiniRay14). Simulated line-source waveguides and large-format horns extend smooth low-mid response down to 500 Hz - covering the entire 500 Hz - 18 kHz range with excellent pattern control and a focused acoustic image for precise stereo imaging and symmetry.



PreAngle Rigging

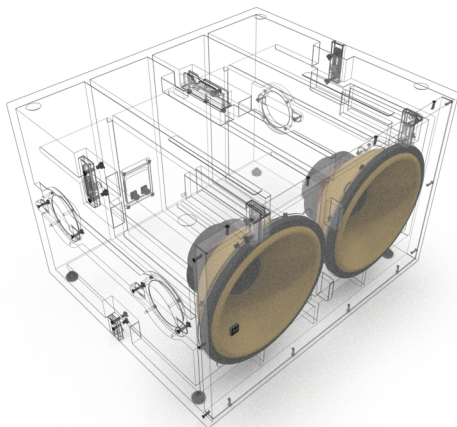
MiniRay10 Patented 3 point rigging hardware. Preset angles for flying or stacking. Same with as MiniRay10 for seamless connection - no adapter needed.



MVS28

Key Features

- Dual 18" direct-radiating, bass-reflex design
- Stack full-range on sub without adapter frame
- Extra-large port reduces air turbulence noise
- Frequency extension down to 30 Hz



Universal Stacking Design

Compatible for direct stacking with MiniRay12, MiniRay14, MiniRay3C, and MiniRay10 - no additional adapter required. The MVS28 is a dual 18" subwoofer purpose-matched for the MiniRay12. With a cabinet width of 1 meter, integrated stacking hardware allows full-range speakers to be stacked directly on the sub without any conversion frame.

New Design Approach

For the MVS218 subwoofer, the MZ Audio R&D team use high efficiency direct-radiating design. Optimized cabinet volume and port tuning for dual 18" drivers - 115 mm voice coils, 1000 W AES, neodymium magnets.

High Volume Direct-Radiating Bass-Reflex

The MVS218 features a direct-radiating configuration with dual 18" drivers. Matched with an optimized large enclosure volume, it achieves a frequency range of 25Hz–200Hz - delivering both deep, powerful low-end extension and articulate punch, providing an immersive, wrap-around sub-bass experience with exceptional long-throw capability.



D1600-4V

Key Features

- 4 in 4 out DSP with FIR
- 4 × 2500 W switching power supply
- 2 × AES3 inputs, Dante optional
- 4 × 1600W @ 8Ω Output Power

4 Channel DSP Amplifier

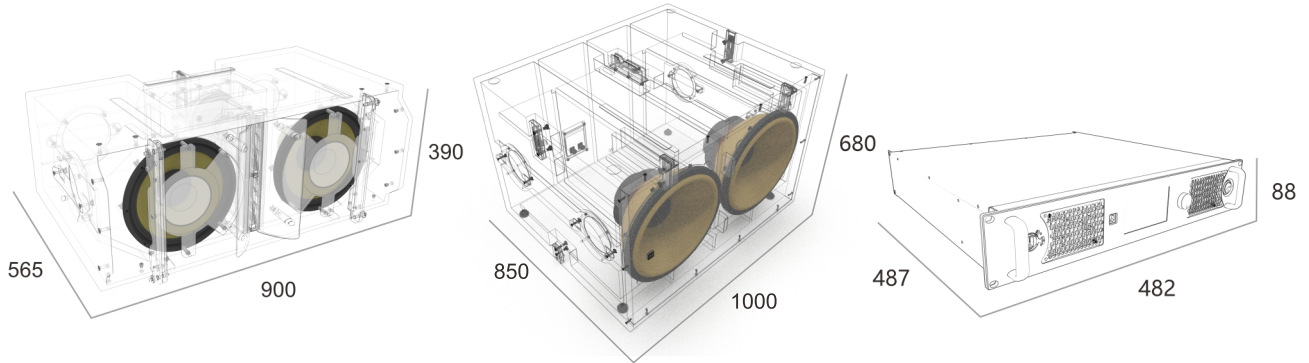
D1600-4V is a 4 in 4 out amp features four independent amplifier modules, each with its own 2500W power supply - total 10000W.

This allows all four channels to run simultaneously at 4Ω, unlike conventional 4×1300W amps sharing a single 4000-5000W supply.

This design greatly enhances application flexibility, allowing arbitrary channel assignment without power budget concerns. The color touchscreen enables direct control - adjust parameters or recall presets without a computer.



Parameter



SPECIFICATIONS

MiniRayI2

MVS28

Frequency Range(-10dB)	45 Hz - 18 kHz	25 Hz - 200 Hz
MAX SPL	145 dB SPL peak	142 dB SPL peak
Coverage	Horizontal 90°/ Vertical 0-7° Adjustable	Horizontal 360°/ Vertical 180°
Transducers	2 x12"ND Woofers; 2 x 100mm + 65mm Coaxial ND Mid-High Driver	2 x18" 115mm Voice Coil Neodymium Woofer
Nominal Impedance	Low 8Ω HiMid 8Ω	4Ω
Driving Mode	3-Way Two Drive	Single Drive
Power (AES)	Low 800 W; Hi Mid 200 W	2000 W AES
Cabinet	Baltic birch plywood, black polyurea finish	Baltic birch plywood, black polyurea finish
Dimensions (W×H×D)	900 X 390 X 565 mm 35.43 x 15.35 x 22.24 in	1000 × 680 × 850 mm 39.37 × 26.77 × 33.46 in
Weight	56.4 kg / 124.34 lbs	102 kg / 224.87 lbs

DI600-4V

Amplifier Module

DSP Module

Amplifier Output	4 × 1600W@ 8Ω	Input Impedance	20KΩ	SNR	≥ 113dB
Frequency Response	20 Hz-35 kHz ±1 dB	Output Impedance	100Ω	Noise Floor	≤ -96dB A-weighted
Rated Voltage	90-240V / AC 50-60Hz	A/D Dynamic Range	118dB	CMRR	74dB
SNR	Typical > 120dB	D/A Dynamic Range	118dB	Dante Input Channels	4
Dimensions (W×H×D)	482 × 88 × 487 mm 18.98 × 3.46 × 19.17 in	Max Input Level	23dBu	AES Digital Input Channels	2
Weight	15.48 kg / 34.13 lbs	Max Output Level	17dBu	4 Analog Input Channels	4
		THD	≤ 0.004%	USB Control Port	1
		Frequency Response	20Hz~40kHz	Network Control Port	1
		Crosstalk	≤ -102dB		

MiniRayl2
Mini Line Array

small footprint
SONIC IMPACT



MZ AUDIO

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MZ audio technology development Co.,Ltd.

V1.0