DD SERIES

DD12™

COMPACT POWERED DIFFERENTIAL DISPERSION™ SYSTEM

MARTIN AUDIO
LONDON

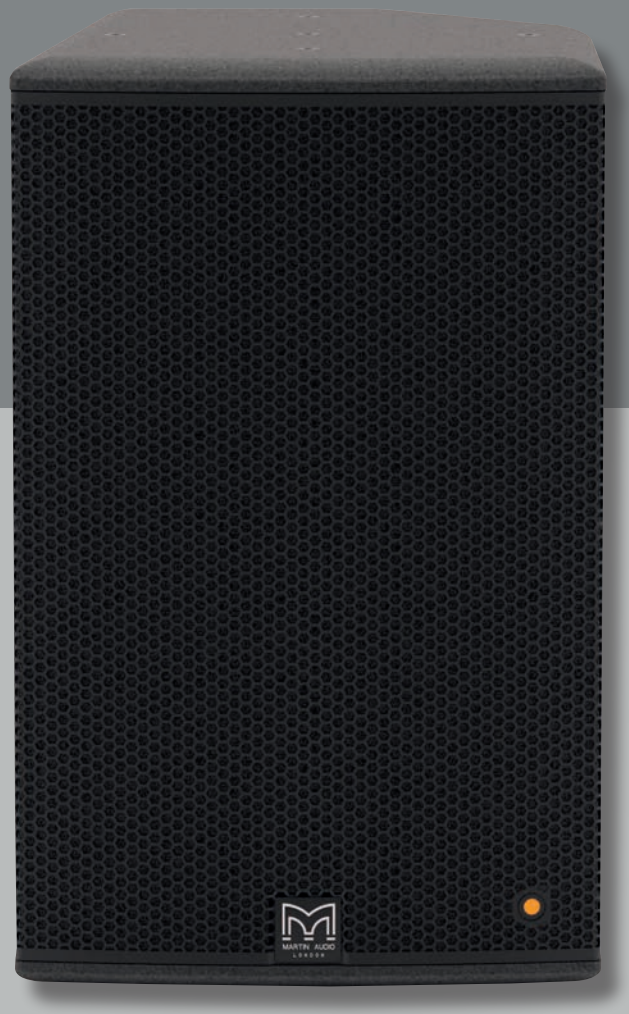
Unite Your Audience

The Martin Audio Experience

DD12™

The multi-purpose DD12 defines the ultimate in performance and versatility for powered, two-way loudspeaker systems. It combines onboard networking, DSP and Class D amplification with state-of-the-art transducers and Differential Dispersion™ horn technology to achieve best-in-class performance in terms of fidelity, output capability and coverage consistency across the audience.

Versatility is a key attribute of the DD12. It is the solution to a multitude of premium stand-alone and distributed sound reinforcement requirements — from touring, theatre and portable live sound applications, to concert hall and HoW installations, AV events and stage monitor use. Ideal as the main PA in small-to-medium size rooms, it can also be used as an infill loudspeaker in large-scale systems.



The DD12 features a high-specification 12" (300mm) LF drive unit and a class-leading 1" (25mm) exit compression driver on a user-rotatable, Differential Dispersion horn.

Differential Dispersion technology delivers more consistent audience coverage than systems with conventional X° x Y° horns — providing more throw to the rear to distribute sound evenly front-to-back, while having wider close-up horizontal coverage for the front rows.

FEATURES

- Multi-purpose, bi-amplified, powered two-way system
- Compact, multi-angle, polyurethane-coated plywood enclosure with screw-free perforated steel grille
- User-rotatable Differential Dispersion™ horn optimises coverage footprint across the audience plane
- 12" (300mm) LF drive unit plus 1" (25mm) exit HF driver complement
- 131dB peak output capability
- Onboard DSP, networking and Class D amplification (1400W LF, 700W HF)
- Switched-mode power supply with Power Factor Correction and global mains operation
- Wide range of vertical and horizontal deployment options
- Integral pole mount and M8 rigging inserts
- Rain cowl option for outdoor use

APPLICATIONS

- Live sound reinforcement
- Theatre sound reinforcement
- Fixed installations in concert halls and HoW
- Corporate AV events
- High-power stage monitoring
- Frontfill/infill for large-scale systems

The compact, multi-angle enclosure can be used in either vertical or horizontal orientation. Comprehensive brackets support a wide variety of mounting options — including surface, ceiling and pole mount. Integral M8 inserts for eyebolt suspension increase the mounting options even further.

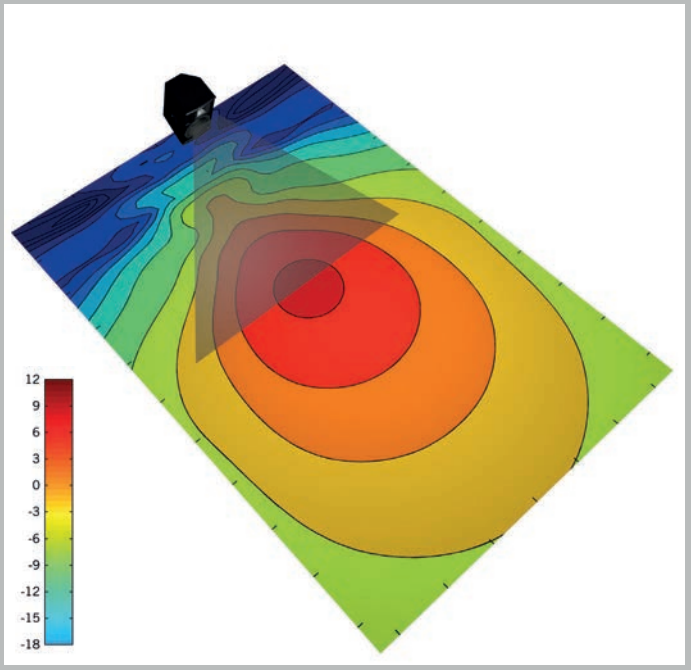
Every design effort has been focused on maximising the output of the drive units — giving the DD12 a maximum SPL capability of 131dB peak @ 1m. The 12" (300mm) LF driver has a lightweight 3" (75mm) voice coil and utilises a neodymium magnet assembly with high gap flux for maximum sensitivity, while the cone is made of a new pulp formulation with an epoxy treatment to ensure smooth mechanical breakup and a high strength-to-weight ratio. Flux demodulating rings reduce distortion at high excursions, and advanced cooling reduces power compression to negligible levels. The 1" (25mm) exit compression driver has a 1.7" (44mm) polyimide dome and ultra-high flux neodymium motor system for maximum efficiency, plus a copper cap to extend the HF response.

The DD12's tour-grade plywood enclosure is coated in hard-wearing polyurethane and its Declon® backed steel grille is pre-curved to resist deformation in the field. The grille is a spring-fit into the sides of the enclosure and requires no retention screws, allowing for easy removal to access the HF horn for rotation. The grille arrangement also means that the baffle and long sides of the enclosure form a continuous surface into which the LF driver and HF horn are flush-mounted to reduce diffraction effects.

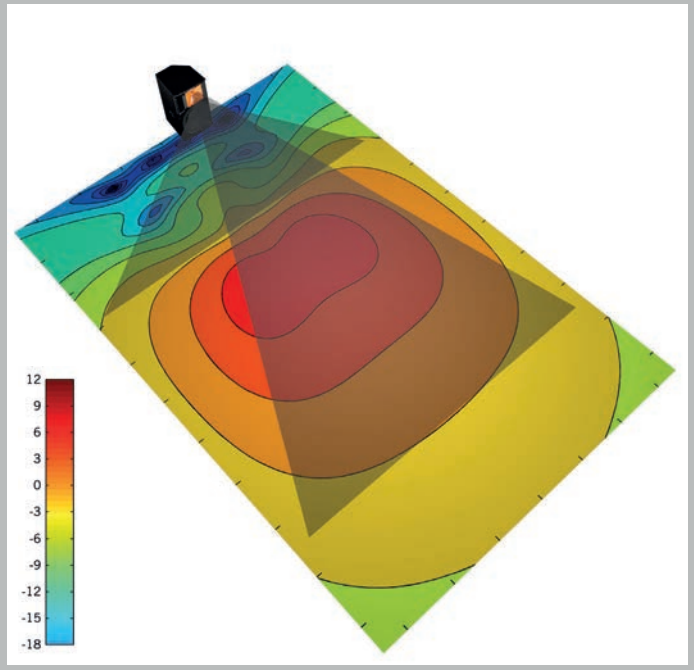
DIFFERENTIAL DISPERSION™ TECHNOLOGY

Differential Dispersion horn technology enables the DD12 to deliver sound accurately and evenly across the audience. Designed using in-house, proprietary BEM (Boundary Element Method) tools, the HF horn has a 3D trapezoid dispersion pattern which covers the audience area in a much more consistent manner than conventional X° x Y° type horns.

In order to achieve optimal front-to-back coverage from a centrally positioned loudspeaker with a conventional X° x Y° horn, the speaker is usually placed above the listening plane and aimed towards the centre of the audience. This results in a less-than-ideal coverage pattern with a relatively small 'hot-spot'. Significantly, front rows to either side of the loudspeaker are covered poorly.



▲ Conventional X° x Y° horn



▲ DD12 Differential Dispersion horn

In contrast, The DD12 requires much less down tilt and is aimed toward the rear of the audience. With a short-throw horizontal coverage of 110°, narrowing to 60° as throw increases, it produces a well-defined rectangular coverage pattern on the listening plane and covers the audience much more evenly than a system with a conventional horn. Noticeably, wide front row coverage is maintained very close-up to the DD12. Walking the room, the consistency in frequency response and SPL — both side-to-side and front-to-back — is remarkable.

ONBOARD AMPLIFICATION, DSP AND CONTROL

The DD12 is a fully-integrated system with onboard DSP, networking and amplification — simplifying set-up, enhancing control and eliminating amplifier racks. Two Class D amplifier channels deliver 1400W + 700W to drive the DD12's LF and HF sections independently — with onboard DSP performing EQ and crossover functions. Steep-slope FIR crossover filters enable the DD12's 1" exit HF device to outperform larger exit drivers, due to its inherently superior efficiency and performance at extreme high frequencies.

The lightweight, switched-mode power supply auto-ranges to global mains voltages from 100 to 240V 50/60Hz, while Power Factor Correction smoothes out the mains current draw over the whole of the AC waveform.

Whether configured as an element in a stand-alone DD12 system or part of a larger MLA/MLA Compact system, individual DD12's can be controlled and monitored from a laptop or wireless tablet PC via intuitive VU-NET™ proprietary software. PC connection can be made directly via micro USB, or via Martin Audio's proprietary U-NET™ network and U-Hub system.

An important feature of the DD12 is its internal memory, which allows factory 'plug-and-play' or user-generated DSP preset 'snapshots' to be recalled by means of a preset selector button on the rear panel, instead of using computer control.

ON-THE-FLY FLEXIBILITY

Comprehensive accessories support a wide variety of mounting options – including surface, ceiling and pole mount. The DD12's universal bracket facilitates a wide range of down-tilt and up-tilt angles in both portrait and landscape orientation. It can be mounted directly onto the pole of a speaker stand or attached to a scaffold clamp. The clamp can be attached to the centre of the bracket for +/-15° range of adjustment, or to one end of the bracket for a down-tilt of up to 30°.

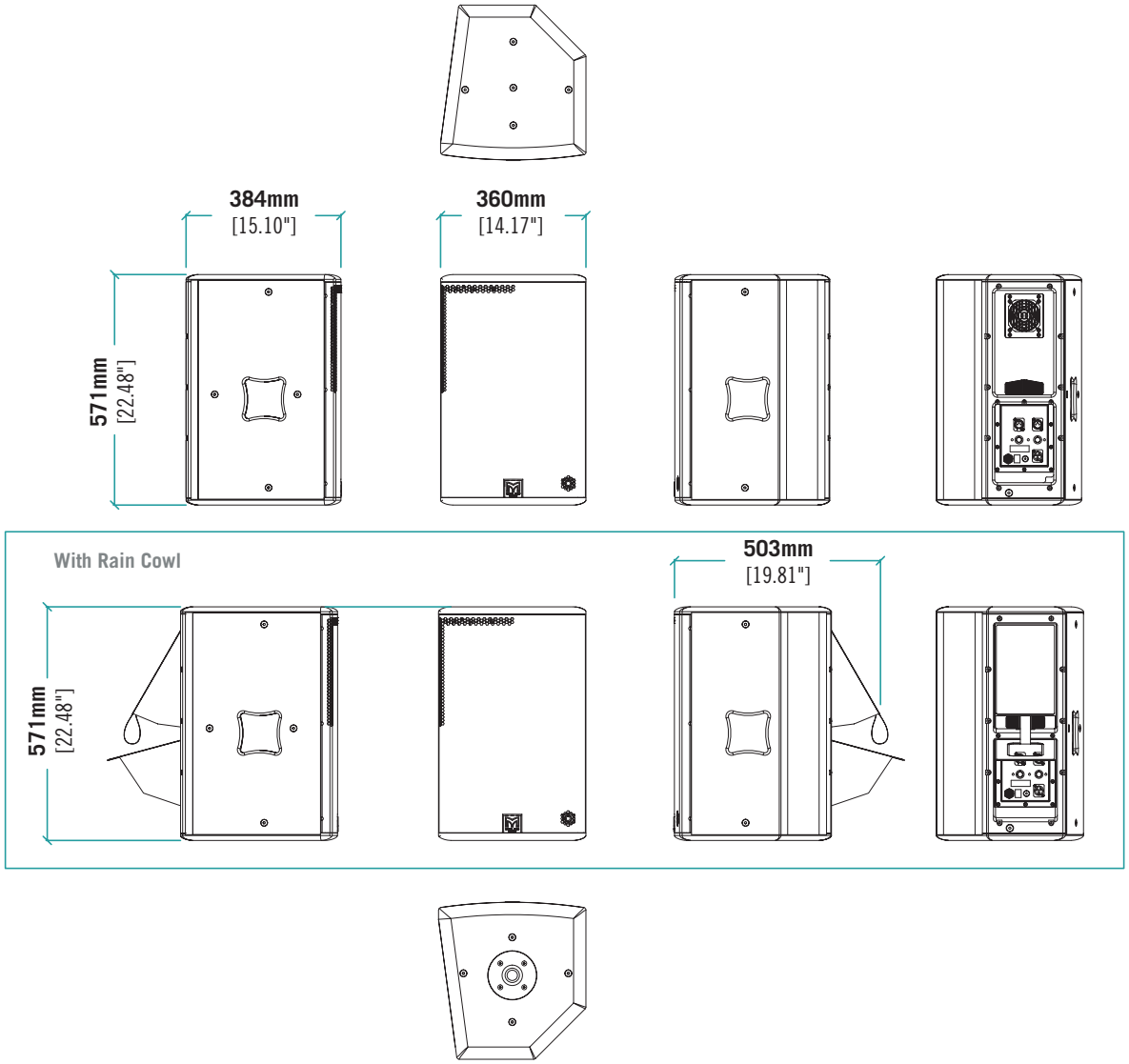
The base of the DD12 is fitted with a 'top-hat' socket for direct pole mounting when no tilt is required.

An optional multi-purpose yoke is designed to mount the DD12 on ceilings, walls, trusses or poles. In portrait orientation, the yoke can be fixed directly to a wall or attached to a scaffold clamp for suspension from a truss. When suspended in this way, the enclosure has a natural down-tilt of 20°. In landscape orientation, the yoke can be fixed directly to ceilings or attached to a scaffold clamp.

Suitable Martin Audio subwoofers for use with the DD12 include the WS18X, the WS218X — or, for ultimate performance — the powered and networked DSX.

Note: Scaffold clamp not included

TECHNICAL SPECIFICATIONS



Acoustical	
TYPE	Compact, Differential Dispersion™, powered two-way system
FREQUENCY RESPONSE (1)	65Hz-18kHz ± 3dB, -10dB @ 55Hz
MAXIMUM SPL (3)	125dB continuous, 131dB peak
Drivers	
LF	12" (300mm)/3" (75mm) voice coil, long-excursion, neodymium magnet driver
HF	1" (25mm) exit/1.7" (44mm) voice coil, polyimide dome, neodymium magnet compression driver
Dispersion	Differential Dispersion: 110-60° horizontal, 60° vertical
Audio input	
CONNECTORS	Female XLR input, male XLR link output
ANALOGUE INPUT IMPEDANCE	20kΩ balanced to ground
MAXIMUM ANALOGUE INPUT LEVEL	6.15Vrms (+18dBu), over voltage protected
AES/EBU IMPEDANCE	110 ohms balanced, receive and transmit termination
Internal Processing	Multi-channel DSP, programmable via network
	8 PEQ/shelving filters
	Up to 48dB/Oct HPF
	Vanishing Point™ FIR crossover filters
	Up to 1 second of delay
	Preset selection via rear panel switch
Network	
CONNECTORS	IP68 rated 8-way, quick-release type
PROTOCOL	U-NET
PC CONNECTION	Micro USB or via U-NET and U-Hub/DX4.0 controller
Amplifier Module	
TYPE	2 channel switch-mode, class D
CONTINUOUS OUTPUT POWER	1050W
AVERAGE EFFICIENCY	85%
COOLING	Internal fan
	Temperature controlled external fan
MAXIMUM AMBIENT TEMPERATURE	45°C (113°F) for full output
Power Supply	
TYPE	Switch mode, fixed frequency with PFC
AC INPUT OPERATING RANGE	100 – 240V ~ AC, 50 - 60Hz
POWER FACTOR	> 0.95
MAINS CONNECTOR	Neutrik® Powercon True1
General	
ENCLOSURE	Extensively braced multi-laminate birch ply
FINISH	Textured black PU coating
PROTECTIVE GRILLE	Black HEX perforated steel, Declon® backed
FITTINGS	Top hat for pole mounting
	15 x M8 threaded inserts
	Two side pocket handles
	Optional weather protection cowl
IP Rating	IP 25 (with weather protection cowl)
DIMENSIONS	(W) 360mm x (H) 571mm x (D) 384mm (503mm with cowl)
	(W) 14.2in x (H) 22.5in x (D) 15.1in (19.8in with cowl)
WEIGHT	26kg (57.2 lbs)
Accessories	Transit cover
	Flight case for 2 x DD12 and accessories
	Tour-grade network interconnects
	U-Hub/DX4.0 Controller/U-NET Hub

Notes
(1) Measured on-axis in free space (4π space) at 2 metres, then referred to 1 metre.
(2) AES Standard ANSI S4.26 -1984.
(3) Measured in free space at 1 metre with a tone burst signal.

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DD12 with Rain Cowl option

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Version 2.2C