

# MLD

## Multi-Cellular Loudspeaker Array Downfill

### Features

- Downfill for MLA system
- Three-way all-horn design delivers LF/MF/HF peak SPL's of 139/139/140dB
- 120°H x 20°V coverage
- 52Hz-18kHz  $\pm$  3dB full bandwidth frequency response

### Applications

- Large-scale touring sound reinforcement for outdoor festivals, stadia, arenas and concert halls
- Premium fixed installations in concert halls, theatres and sports venues



In order to match the performance and tonal balance of MLA, the MLD has been designed around the same acoustic format and electronics package. Coherent arrays of MLA and Downfill can easily be constructed to seamlessly cover the audience planes. The MLD Downfill is an important MLA system component. Using just one – or at most - two Downfills to cover the first few rows maximises the projection and efficiency of the entire array.

Line array systems project, or throw better when the inter-cabinet angles are small. Unfortunately real-world requirements often dictate that the flown array must cover right up to the stage barrier. Arrays designed in this manner take on the familiar, highly-curved, banana shape. This is wasteful of array elements as almost half the array ends up being used to cover the first thirty metres/one hundred feet - leaving fewer boxes to reach the back seats.

The solution is to add a cabinet with a wider vertical dispersion. In the Downfill's case this is 20°. Using only one - or at the most two - Downfills at the bottom of an array results in a lower curvature more directional array that projects much further and covers right up to the stage barrier.

The Downfill's benefits are not confined to the vertical plane. With an extremely wide horizontal dispersion of 120°, the Downfill reaches to front-row-central as well as the ends of the front rows.

Our HiBlade™ patent-pending technology ensures ultra-high frequencies propagate right out to the edges of the dispersion pattern. Conventional 120° horns without this device tend to lose high frequency sparkle rapidly, as the listener moves off axis.

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### Technical Specifications

#### Acoustical

|              |                                                                                                                      |
|--------------|----------------------------------------------------------------------------------------------------------------------|
| TYPE         | Three-way cellular drive, active array element                                                                       |
| RESPONSE (1) | FREQUENCY<br>52Hz-18kHz $\pm$ 3dB                                                                                    |
| MAXIMUM SPL  | LF: 133dB continuous, 139dB peak (3)<br>MF: 133dB continuous, 139dB peak (4)<br>HF: 134dB continuous, 140dB peak (4) |

#### Drivers

|                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------|
| LF: 2x12" (300mm)/3" (75mm) voice coil, ultra-long excursion, neodymium magnet drivers, Hybrid® bass horn loaded |
| MF: 2 x 6.5" (165mm)/2" (50mm) coil, neodymium magnet drivers, horn loaded                                       |
| HF: 3 x 1" (25mm) exit neodymium magnet compression drivers, horn loaded                                         |

#### Rated Power (2)

|                          |
|--------------------------|
| LF: 800W AES, 3200W peak |
| MF: 400W AES, 1600W peak |
| HF: 150W AES, 600W peak  |

#### Dispersion

|                          |
|--------------------------|
| (-6dB): 120° horizontal  |
| (-10dB): 140° horizontal |
| 20° vertical             |

#### Crossover Frequencies

|                                    |
|------------------------------------|
| 320Hz: 8th-order Linkwitz-Riley    |
| 4kHz: Vanishing Point™ FIR filters |

#### Audio input

|                              |                                                    |
|------------------------------|----------------------------------------------------|
| CONNECTORS                   | Female XLR input, male XLR link output             |
| ANALOGUE INPUT IMPEDANCE     | 20k $\Omega$ balanced to ground                    |
| MAXIMUM ANALOGUE INPUT LEVEL | 6.15Vrms (+18dBu), over voltage protected          |
| NOMINAL SYSTEM GAIN          | 28.5dB                                             |
| AES/EBU IMPEDANCE            | 110ohms balanced, Receive and transmit termination |

#### Network

|            |                                         |
|------------|-----------------------------------------|
| CONNECTORS | 2x IP68 rated 8-way, quick-release type |
| PROTOCOL   | U-NET                                   |

#### Amplifier Module

|                             |                                                                                                                   |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------|
| TYPE                        | Six channel Class D, fixed-frequency                                                                              |
| PEAK OUTPUT POWER           | 6000W                                                                                                             |
| AVERAGE EFFICIENCY          | 75%                                                                                                               |
| COOLING                     | 4 x temperature controlled internal fans 1 x low-speed internal blower<br>1 x 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                               |
| CONSUMPTION | 900W                                                     |

|                 |                                   |
|-----------------|-----------------------------------|
| MAINS CONNECTOR | 16A IEC309 (Ceeform) – IP44 rated |
|-----------------|-----------------------------------|

#### General

|                   |                                                                                                                                                                  |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ENCLOSURE         | Vertical trapezoid with 10° wall angle, multi-laminate birch and poplar-ply construction                                                                         |
| FINISH            | Textured black PU coating                                                                                                                                        |
| PROTECTIVE GRILLE | Black HEX perforated steel                                                                                                                                       |
| FITTINGS          | Proprietary rigging system Bar handles on each side<br>Protective Rubber side-cheeks incorporating skids Wheel-board<br>Transit cover<br>Weather protection cowl |

|                               |                                                                                                          |
|-------------------------------|----------------------------------------------------------------------------------------------------------|
| IP RATING                     | IP 24                                                                                                    |
| DIMENSIONS (inc. wheel-board) | (W) 1136mm x (H) 454mm (458mm) x (D) 680mm (840mm)<br>(W) 44.7 x (H) 17.9in (18in) x (D) 26.8in (33.1in) |

|                          |                |
|--------------------------|----------------|
| WEIGHT (ex. wheel-board) | 91.5kg, 201lbs |
|--------------------------|----------------|

#### Accessories

|                                                                    |
|--------------------------------------------------------------------|
| Flying frame (including clinometer) Ground stacking bar            |
| Flying Pin                                                         |
| Mains distribution system                                          |
| Tour-grade network interconnects U-Hub/DX4.0 Controller/ U-NET Hub |

#### Notes

- (1) Measured on-axis in open (4p) space at 4 metres, then referred to 1 metre.
- (2) AES Standard ANSI S4.26-1984.
- (3) Measured in half-space at 1 metre with a tone burst signal, then referred back to open (4p) space.
- (4) Calculated from 4m 2.83v sensitivity, referred to 1m.

#### Trade Descriptions Act

Due to Martin Audio's policy of continuing improvement, we reserve the right to alter these specifications without prior notice. Martin Audio is committed to refining state of the art sound reinforcement, combining in-depth product and field applications research with advanced manufacturing techniques. Every Martin Audio product is built to the highest manufacturing standards and rigorously tested to ensure that it meets the performance criteria specified in the design.

