

MARTIN AUDIO DD12

DD12 USER GUIDE

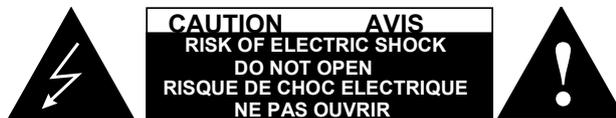


DD12™

SAFETY INFORMATION

IMPORTANT SAFETY INSTRUCTIONS

1. Read these Instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding type plug, a polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet consult an electrician for replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit the apparatus.
10. Only use attachments and accessories specified by the manufacturer.
11. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. when a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over
12. Unplug the apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. The means of disconnection from the mains is the appliance coupler or mains plug. One of these devices must remain accessible when the apparatus is in use.



CAUTION

To reduce the risk of electric shock do not remove any covers. There are no user serviceable parts inside the unit. Refer servicing to qualified service personnel only. Call Martin Audio Ltd on +44 (0)1494 535312 or e-mail info@martin-audio.com for service.

APPROVALS

Safety:	IEC60065:2002 + A2:2010
Environmental:	IP24 when in portrait mode (i.e., upright), fitted with cowl assembly (Martin Audio Pt No ASF15019), weatherproof grille (Martin Audio Pt No HAG01145) and used with mains connectors/cords rated to at least IP24
	IP2X when NOT fitted with cowl assembly or not used with mains connector/cords rated to at least IP24
Country of origin:	United Kingdom
EMC Emission:	EN55103-1:2009
EMC Immunity:	EN55103-2:2009
FCC:	CFR47 Part 15B-2010

This is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

SAFETY RULES

- This DD12 must be powered exclusively by an earth-connected mains socket in electrical networks compliant to the IEC 364 or similar local rules. It is absolutely vital that the user verifies this fundamental safety requirement. If you are in any doubt, get the installation checked by qualified personnel before use.
- The means of disconnection from the mains is the Neutrik® PowerCON TRUE1. We strongly recommend that you power the DD12 by a professionally installed mains supply with an easily accessible on/off switch or circuit breaker. A comprehensive mains distribution system with circuit breakers is available from Martin Audio.
- Before powering the DD12 via the Neutrik® PowerCON TRUE1 connector, make sure that the unit is supplied with the correct mains operating voltage:
 - 100 – 240 V, 50 – 60 Hz
- The DD12 power section is protected by two fuses:
 - F1: (T3,15A L 250V) in the power amplifier
 - F2: (F 4A L 250V) in the auxiliary (DSP) power supply
- Do not use this unit if the electrical power cord is frayed or broken.
- Do not remove the cover. Removing the cover will expose you to potentially dangerous voltages.
- When not fitted with the weatherproof cowl (Martin Audio Pt No ASF15019), weatherproof grille (Martin Audio Pt No HAG01145), or not used with mains connector/cords rated to at least IP24, the DD12 must not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

CONSIGNES DE SÉCURITÉ

CONSIGNES DE SÉCURITÉ IMPORTANTES

1. Lire ces consignes.
2. Conserver ces instructions.
3. Observer tous les avertissements.
4. Suivre toutes les consignes.
5. Ne pas utiliser cet appareil à proximité de l'eau.
6. Nettoyer uniquement avec un chiffon sec.
7. Ne pas installer à proximité d'une source de chaleur telle qu'une flamme nue, un radiateur, une bouche de chaleur, un poêle ou d'autres appareils (dont les amplificateurs) produisant de la chaleur.
8. Ne pas détériorer la sécurité de la fiche polarisée ou de la fiche de terre. Une fiche polarisée comporte deux lames dont l'une est plus large que l'autre. Une fiche de terre comporte deux lames et une troisième broche de mise à la terre. La lame la plus large ou la troisième broche assure la sécurité de l'utilisateur. La fiche fournie ne s'adapte pas à la prise électrique, demander à un électricien de remplacer la prise hors normes.
9. Protéger le cordon d'alimentation afin que personne ne marche dessus et que rien ne le pince, en particulier au niveau des fiches des prises de courant et du point de sortie de l'appareil.
10. Utiliser uniquement les accessoires spécifiés par le fabricant.
11. Utiliser uniquement avec un chariot, un trépied, un support ou une table spécifiée par le fabricant ou vendu avec l'appareil. Si un chariot est utilisé, déplacer l'ensemble chariot-appareil avec précaution afin de ne pas le renverser, ce qui pourrait entraîner des blessures.
12. Débrancher l'appareil pendant les orages ou quand il ne sera pas utilisé pendant longtemps.
13. Confier toute réparation à du personnel qualifié. Des réparations sont nécessaires si l'appareil est endommagé d'une façon quelconque, par exemple : cordon ou prise d'alimentation endommagé, liquide renversé ou objet tombé à l'intérieur de l'appareil, exposition de l'appareil à la pluie ou à l'humidité, appareil qui ne marche pas normalement ou que l'on a fait tomber.
14. La prise secteur ou un coupleur d'appareil électrique doit rester facilement utilisable.



ATTENTION

Pour réduire les risques d'incendie ou de choc électrique, ne pas ouvrir le capot arrière. L'utilisateur ne doit pas se servir des pièces à l'intérieur de l'appareil. Confier toute réparation à du personnel qualifié. Si nécessaire, appelez Martin Audio, Ltd au +44 (0)1494 535312 ou par e-mail info@martin-audio.com.

APROBATION



Sécurité: IEC60065:2002 + A2:2010

Environnement: IP24 lorsque l'enceinte est vertical, assemblée avec le capot (Martin Audio Pt No ASF15019), grille de protection waterproof (Martin Audio Pt No HAG01145) et utilisée avec des connecteurs au minimum de classe IP24

IP2X lorsque l'enceinte n'est pas assemblée avec le capot ou que les connecteurs utilisés ne sont pas au minimum de classe IP24

Pays d'origine: Royaume Uni

EMC Emission: EN55103-1:2009

EMC Immunity: EN55103-2:2009

FCC: CFR47 Part 15B-2010

C'est un produit de classe A. Lors d'une utilisation dans un environnement domestique, il se peut que l'appareil produise des interférences radioélectriques, auquel cas, l'utilisateur devra prendre les mesures nécessaires à la bonne utilisation de l'appareil.

RÈGLES DE SÉCURITÉ

- La DD12 doit être alimentée exclusivement via une prise connectée à la terre dans un réseau électrique conforme aux normes locales ou de type IEC364. Il est absolument vital que l'utilisateur s'assure de cette exigence de sécurité. Si vous avez le moindre doute, faites vérifier l'installation par une personne qualifiée.
- La déconnection au réseau électrique s'effectue à l'aide des Neutrik® PowerCON TRUE1. Nous recommandons fortement que l'alimentation de la DD12 soit assurée par un branchement professionnel comportant un interrupteur ON/OFF facilement accessible ou un court circuit. Un système de distribution de courant avec disjoncteurs est disponible chez Martin Audio.
- Avant de mettre sous tension la DD12 avec un connecteur Neutrik® PowerCON TRUE1, assurez-vous que l'enceinte est configurée au bon voltage :
 - 100 – 240 V, 50 – 60 Hz
- La section d'alimentation de la DD12 est protégée par 2 fusibles :
 - F1: (T3,15A L 250V) dans l'amplificateur de puissance
 - F2: (F 4A L 250V) dans la source de courant auxiliaire (DSP)
- Ne pas utiliser cet appareil si le cordon d'alimentation est usé ou endommagé.
- Ne pas retirer le capot de protection. Retirer le capot peut vous exposer à des niveaux de tensions très dangereux.
- Lorsqu'elle n'est pas utilisée avec la housse de protection waterproof (Martin Audio Pt No ASF15019), la grille de protection waterproof (Martin Audio Pt No HAG01445) ou n'utilisée pas avec des connecteurs ou cordons au minimum de classe IP24, la DD12 ne doit pas être exposée à des éclaboussures et aucun contenants à liquide, comme des vases ou bouteilles, ne doivent être posés sur l'appareils.

CONTENTS

SAFETY INFORMATION	2
Important Safety Instructions	2
Approvals	3
Safety Rules	4
CONSIGNES DE SÉCURITÉ	5
CONSIGNES DE SÉCURITÉ IMPORTANTES	5
Aprobation	6
Règles de sécurité	7
INTRODUCTION	9
Unpacking the unitS	9
OVERVIEW	10
REAR CONNECTION PANEL	13
Mains Inlet	13
Neutrik® powerCON TRUE1 connector assembly instructions	13
Signal, U-Net and indicators	16
CONNECTIONS	17
Mains	17
Audio Input and Link	17
USB	17
U-Net	18
GETTING STARTED	18
RIGGING	19
Rotating the horn:	21
Stacking:	21
Pole mounting:	21
ACCESSORIES	22
Universal Bracket	22
Fitting the bracket:	23
Yoke	26
Fitting the yoke:	26
Flightcase	29
Transit Cover	29
PRESET SELECTION	30
VU-NET OPERATION	31
DD12 SPECIFICATIONS	32
WARRANTY	34

INTRODUCTION

Thank you for purchasing this Martin Audio DD12 loudspeaker system.

The DD12 combines Class D amplification, powerful on-board DSP and networking capability with Martin Audio's exclusive Differential Dispersion™ horn technology. The DD12 can deliver the highest quality audio, with consistent coverage, throughout the audience.

The DD12 can be used as a main PA speaker, either stand-alone or as part of a larger system employing other Martin Audio system components. Its cabinet design also makes it ideal for use as a wedge monitor.

This User Guide provides a detailed explanation of the DD12's features and options. Please take the time to read through the Guide even if you are experienced with other Martin Audio products.

Thank you again for placing your confidence in Martin Audio products.

UNPACKING THE UNITS

After unpacking the unit, please check it carefully for any damage. If any is found, immediately notify the carrier concerned - you, the consignee, must instigate any claim. Please retain all packaging in case you need to return the unit.



Please think of our environment.

When the product has reached the end of its useful life, please dispose of it responsibly through a recycling centre.

OVERVIEW

The DD12 is an active full-range loudspeaker with a 12" bass driver and a 1" HF driver, driven by an integral, specifically-designed, two-channel amplifier with comprehensive DSP.

High power Class D, high efficiency amplifier channels are employed, incorporating individual comprehensive digital signal processing. The combination of built-in amplification and DSP offers a high level of control in a compact, lightweight loudspeaker. With the aid of Vu-Net network control software, outstanding levels of consistent, high quality audio can be delivered. The DD12 is intended to be used either singly or in multiples as a stand-alone, plug-and-play system, or as additional elements in larger systems. Optimised venue push button presets are accessible via the rear panel.

The DD12 has audio inputs that can be either standard balanced analogue or AES/EBU digital. (AES/EBU only available when running a system under Vu-Net control.) A parallel connection is available to daisy-chain between cabinets. The DD12 features network control via a U-Net interface, which carries all control data for the on-board DSP. U-Net connections are made via a pair of very high quality, rugged 8-way push-pull latching connectors rated for high speed data applications.

Mains connection is via a Neutrik® PowerCON TRUE1 connector.

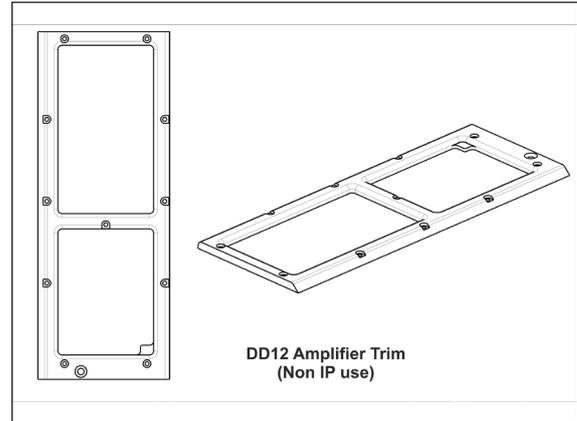
Each channel of DSP comprises extensive processing optimised for the driver being controlled: this includes delay, parametric EQ, high and low pass filters, IIR all-pass filters, FIR low pass filter and EQ, gain, phase and limiting. In addition there are user-accessible parameters including delay, 10 bands of parametric EQ, high pass filtering, gain, phase and muting, when under Vu-Net control.

The DD12 has a variety of rigging options, designed with Martin Audio's considerable experience in system deployment. This allows phenomenally quick system rigging and de-rigging, particularly because there are no amplifier racks to set up and break down.

The DD12 is available in both **Standard** (non-IP rated) and **IP24 Rated** versions. (Note: The IP rating is only valid for the **IP24 Rated** version when the DD12 is used in portrait mode, i.e., upright.) Alternatively the Standard version may be upgraded to IP24 rating by fitting the optional weatherproof cowl (Part No. ASF15019) and weatherproof grille (Part No. HAG01145). The IP24-rated version is suitable for outdoor use in virtually any weather condition.

Note: The DD12 must be returned to either Martin Audio or an approved dealer to have the weatherproof cowl and grille fitted to meet the IP24 specification.

Note: To attain IP24 rating, all connectors and cord sets must also meet the IP24 rating – available as accessories from Martin Audio.



The two versions of the DD12 can be distinguished by the visibility of the IP24 Marking. Below is a photograph of the standard non-IP rated DD12, which has a Bezel trim (shown above) on the amplifier panel. This bezel covers the IP24 rating plate, thereby confirming that it is not IP-compliant. This version should not be exposed to dripping or splashing, and no object filled with liquids, such as vases, should be placed on it.



With the optional weatherproof cowl fitted (Martin Audio Part. No. ASF15019), the DD12's IP24 rating plate is visible.



Provided that the DD12 is used in portrait mode (i.e., upright), with the cowl, the weatherproof front grille (Martin Audio Part No. HAG01145) and Martin Audio Mains Cable sets fitted with IP65-rated Neutrik® PowerCON TRUE1 connectors, it fully meets the requirement of the IP24 rating as tested and approved by NEMKO.

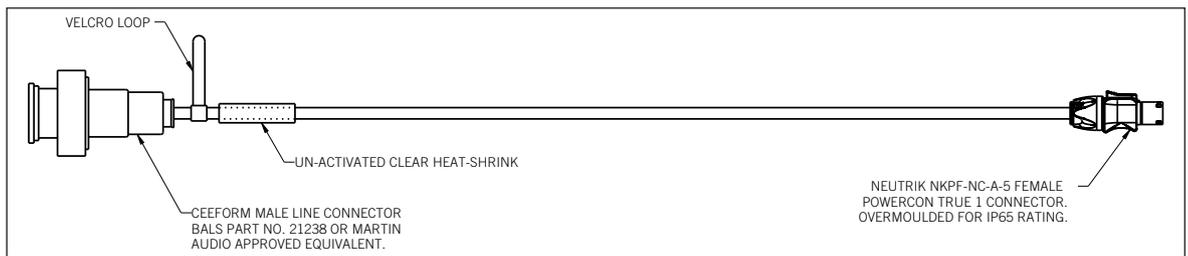


Note: the DD12 is only IP24-rated when used in “Portrait” (upright) orientation. See also “Rigging” on page 19.

REAR CONNECTION PANEL

MAINS INLET

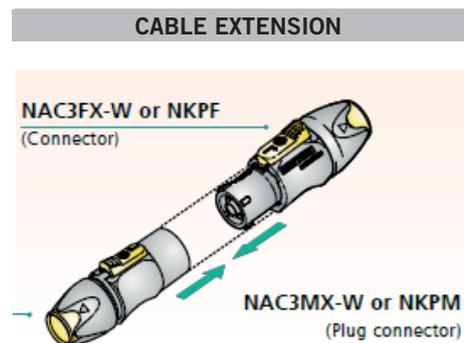
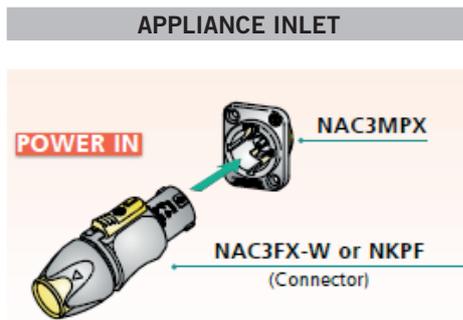
The DD12 mains inlet is located on the rear of the cabinet and is a Neutrik® PowerCON TRUE1 Male receptacle, single phase, IP65 rated inlet connector. A mating IP65 PowerCON TRUE1 plug (without lead) is supplied as standard with the DD12. A comprehensive mains cabling solution with C Form IP-rated input connectors is available for the DD12, which includes IP65-rated female outlets.



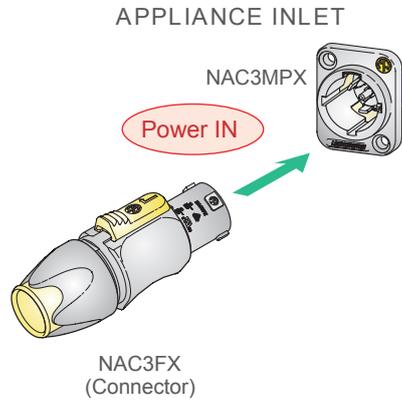
Typical use shown of the Neutrik® PowerCON TRUE1 connector system for powering appliances, and making up extension cables.

Neutrik® powerCON TRUE1 connector assembly instructions

The PowerCON TRUE1 system is certified as a connector with breaking capacity according to IEC60320 and VDE0625. It is intended for use as an appliance and interconnection coupler. It serves to supply power to an appliance. It should be installed by qualified personnel only.

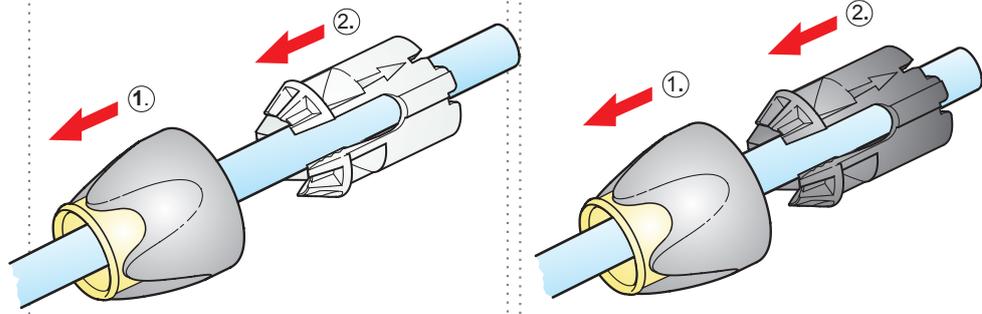


Wiring of the Neutrik® PowerCON TRUE1 connector system for powering appliances is detailed below:

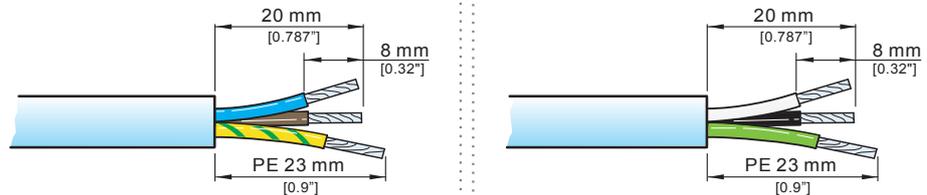


Approval based:	VDE EN 60320-1/EN60320-2-2	UL UL 498 / CSA C22.2 No. 182.3
Rating:	250 V ac / 16 A	250 V ac / 20 A
Cable Type:	H05VV-F3G 1.0 mm ² , Length max. 2 m H05VV-F3G 1.5 - 2.5 mm ²	SJT 3 x 12 AWG
Strain Relief:	White chuck	Black chuck
Cable O.D.:	6.3 - 11.4 mm	9.5 - 12.0 mm

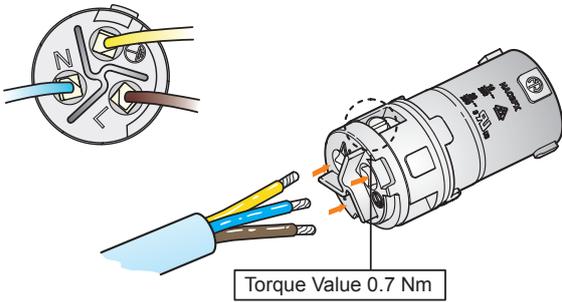
A Place bushing and chuck over the cable.



B Prepare cable as shown.



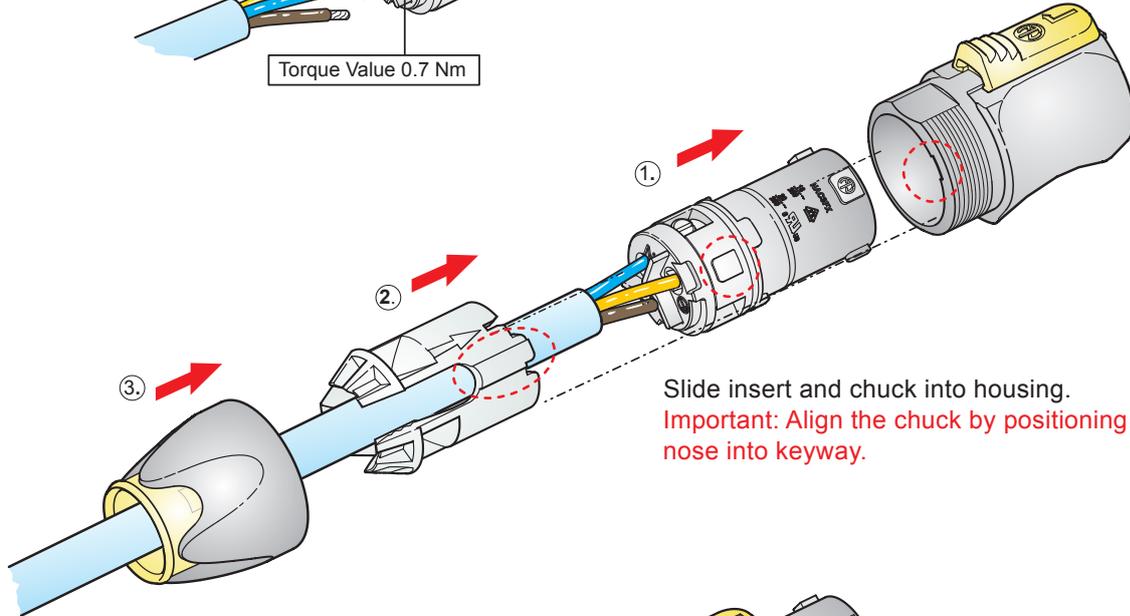
C



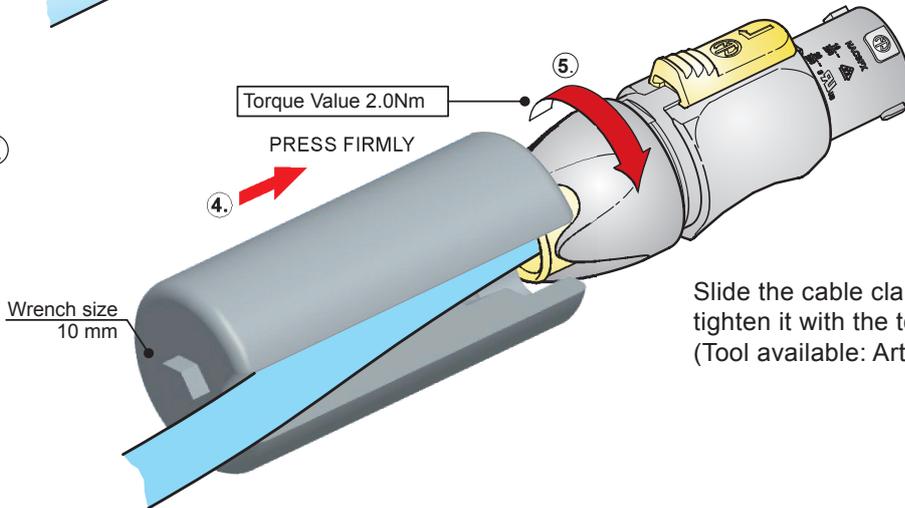
Slide the cable into the contacts and clamp with the screw.

Wiring	VDE	UL
L	brown	black
N	blue	white
⊥	green/ yellow	green

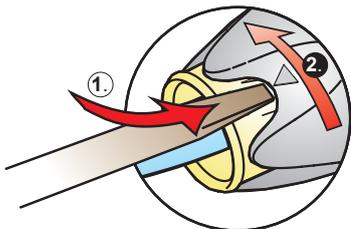
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E



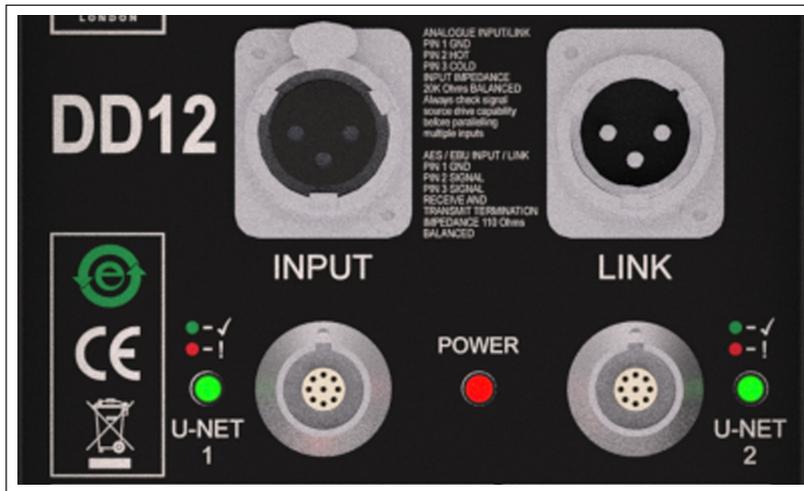
Slide the cable clamp bushing up the cable and tighten it with the tool as shown. (Tool available: Art. No. HTAC)



Disassembly (open twist lock):

1. Press with screw driver to unlock (at ▼)
2. Turn bushing while still pressing locking.

SIGNAL, U-NET AND INDICATORS



The connection panel is on the rear of the cabinet and features a female input XLR and a male Link XLR for balanced analogue or AES/EBU digital input signals. Input type is selected via Vu-Net software.

Two 8-pin rugged latching push-pull style data connectors are provided for the U-Net network connection. Two ports are available so that the network connections can be daisy-chained between further DD12 cabinets (or other U-Net equipped Martin Audio cabinets), or U-Net equipped devices such as Martin Merlin system controllers when designing larger speaker systems. Either connector can be used as input or link.

A single red LED indicates power and two bi-colour LED's indicate U-Net network integrity. Green indicates that the network is stable and red indicates an error.

CONNECTIONS

MAINS

The DD12 may be powered by most AC mains voltages found throughout the world. It is fitted with a Neutrik® PowerCON TRUE1 single phase mains inlet. If you are not using a Martin Audio power distribution cable system, a mating Neutrik® PowerCON TRUE1 (NAC3FX) outlet connector must be used. For outdoor use all mains power connectors should be rated to IP65. See “Safety Information” on page 2 for electrical safety details.

AUDIO INPUT AND LINK

Analogue inputs should be connected with a good quality 3-pin male XLR wired to good quality twin screened cable. This is particularly important if the input cable run is long (e.g., from the FOH position to stage). Good quality cable will minimise losses. The Link outputs should use a similarly high quality female XLR. The line driver at the signal source must be able to drive the combined load of all DD12s being linked. Wiring is the industry standard for balanced connections:

PIN	CONNECTION
1	Ground or shield
2	Signal 'hot' ('+')
3	Signal 'cold' ('-')

AES/EBU input connections are identical to analogue, but the cable used must be a dedicated low-capacitance digital audio cable with a characteristic impedance of 110 ohms, such as Belden 1800F or 1696A. The DD12's inputs can only be enabled for digital use via the Vu-Net software application.

For more details of Merlin and U-Net please see the relevant User Guides.

USB

The Type B USB port allows connection of a PC for system control and monitoring purposes. For simple set-ups using the internal presets, this connector may be ignored.

The USB port may be used for network control purposes in smaller systems in preference to the U-Net system (see page 18). As USB connectivity generally imposes a 5 m cable length limit, a Sillex USB-to-Ethernet convertor is available from Martin Audio as an optional accessory (Part No. ASF14103). This is a self-contained, physically small unit which can be attached with Velcro or similar to the DD12. It connects to the DD12 with a standard USB cable, and back to the laptop running Vu-Net via Ethernet.

U-NET

When a networked system with multiple DD12s requires long cable runs – possibly including other Martin Audio network devices - the dedicated U-Net Bus must be used as opposed to USB, which is only suitable for short cable distances up to 5 metres. Connections are made using Cat 5 cables fitted with 8-way push-pull latching connectors compatible with Lemo Series K type. Robust Cat 5 cable such as Neutrik® Etherflex or Belden 1305A should be used; this will ensure reliable network connections of up to 125 metres between network ports. U-Net uses a redundant ring fault-tolerant protocol, so connections are “daisy-chained” between all units on the network, going from Port 1 on the first unit to Port 2 on the next, and so on. The last network link is back to Port 2 on the first unit, thus completing the loop. The U-Net network will operate perfectly well without a closed loop but it is strongly recommended to use this option so that the network will continue to work in the event of a break in cable or disconnected connector.

Ready made tour-grade network cables are available as accessories from Martin Audio in a variety of lengths, suitable for inter-cabinet patching to FOH-to-stage runs.

GETTING STARTED

Before deploying the DD12, decide on the method of rigging to be used; please see “Rigging” on page 19 for details of rigging options. If the cabinet is to be ground stacked or pole-mounted it can be rigged completely before connections are made. If the cabinet is to be flown, it will be necessary to make connections as rigging is carried out.

While attaching cabinets to a scaf pole or truss, the mains, network and audio connections must be made. We strongly recommend using the Martin Audio mains distribution system which greatly simplifies mains wiring and keeps the wiring neat and tidy. In all cases, the wiring to the cabinets must be secured to the grid above if flown and the connections dropped down to each cabinet. This ensures that the weight of the cable loom does not put undue stress on the connectors. Each mains connector should be plugged into the mains inlet.

The U-Net network cable should be connected to the first co-located cabinet and short linking cables used to “daisy-chain” between adjacent cabinets. Finally a long U-Net cable should go from the final cabinet in the group to the next device on the network. This could be more DD12s on the other side of the stage, other U-Net enabled speakers or amplifiers, or a Merlin controller.

Audio connections can be made in the same way, with a feed from the signal source connected to the input of the first cabinet and short linking cables going from the Link output to the input of the next cabinet.

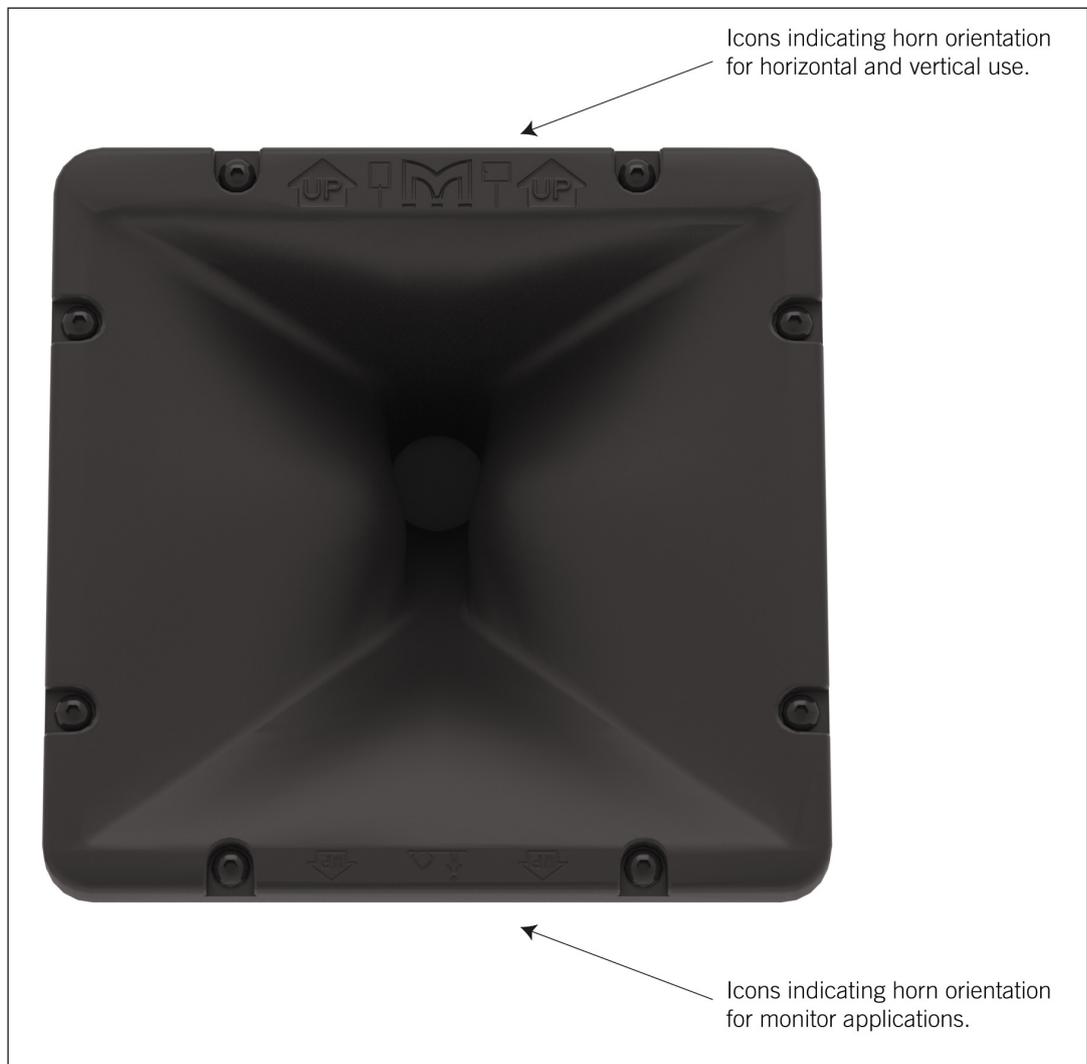
When many DD12s are in use, or when they form part of a larger system (typically of MLA, MLA Compact or MLA Mini cabinets), Display 2.1™ and Vu-Net software can be used to calculate the physical parameters for the system. This data can then be applied to give the optimum coverage for the venue. Vu-Net also offers comprehensive equalisation and monitoring so that all aspects of the array performance can be adjusted and analysed.

RIGGING

An important feature of the DD12 is that it may either be used in horizontal orientation ('landscape'), vertical orientation ('portrait') or as a floor monitor. The ex-factory configuration is for 'portrait' mode use; if the cabinet is to be used horizontally, the HF horn unit should be removed, rotated through 90°, and re-attached. This will ensure that the cabinet's design dispersion characteristics are retained.

Important: the IP rating of the IP24-rated version of the DD12 is only valid when it is used in vertical orientation. The DD12 should not be used in outdoor or other inclement environments either in horizontal orientation, or as a floor monitor.

The horn includes two sets of icons to indicate the correct orientation for each deployment method.



The two “pole mount” icons should be towards the top of the cabinet when it is being used in either vertical and horizontal orientation, as shown below (note the icons):



The DD12's cabinet has been designed to make it usable as a monitor wedge when used in landscape mode. When deployed as a floor monitor, the DD12 horn should be rotated so that the “wedge” icon is uppermost:



ROTATING THE HORN:

To rotate the horn, two medium (3 mm) flat-blade screwdrivers and a 3 mm hex (Allen) key are required.

First remove the grille. The grille is constructed from a steel mesh which is flexible; slight bending of the sides allow it to be retained in grooves on either side of the cabinet. There are three notches in the side of the grille. Insert the two screwdrivers into the upper two of these and carefully prise the grille out of its slot. When the top and middle are clear you can remove the top screwdriver and repeat the operation with the lower notch until the edge is completely clear of the slot. The grille will then pop away from the cabinet.

Next, use the hex key to remove the eight M5 screws holding the horn in place. Withdraw the horn a few centimetres from the cabinet and rotate it to the desired position, noting the icons showing the orientation for the various modes of operation. Replace all eight screws and tighten.

Replace the grille by inserting one edge into the slot on one side of the cabinet. Pull the other side outwards whilst pushing the middle of the grille inwards so that the edges clear the cabinet side and you can push it all the way into position.

STACKING:

DD12s may be ground-stacked. This is commonly done for front fills on a stage lip. Landscape orientation will generally be more appropriate as the cabinets will be less obtrusive. See the notes above regarding horn rotation.

POLE MOUNTING:

The DD12 is fitted with a standard top hat insert in the bottom of the cabinet allowing it to be mounted directly (in "portrait" orientation) onto a standard pole mount.



No tilt adjustment is possible with this simplest mounting option.

ACCESSORIES

The DD12 has a number of accessories available to give a wide range of deployment and transportation options.

UNIVERSAL BRACKET



The ASF20046 Universal Bracket allows the DD12 to be mounted in a number of ways. It can be fitted to with the top, bottom or side of the cabinet, and offers a single 13 mm (1/2") fixing point which can be used to secure the cabinet to any standard 35 mm speaker stand using a pole mount adaptor (Part No. ASF20045) or a scaffold clamp.

Greater mounting flexibility can be obtained by using the Universal Bracket with a pole mount adaptor: the cabinet may be used in "landscape" mode (with the horn rotated 90 degrees). The Universal Bracket allows the DD12 to be tilted upwards or downwards in either portrait or landscape orientation on the pole mount. The bracket has a $\pm 45^\circ$ range of angle adjustment, though this should be restricted to $\pm 15^\circ$ when pole mounting.



It is also possible to mount with the cabinet upside down (in portrait mode) on a pole, providing the horn is rotated through 180° .

When fitted with a scaffold clamp - either a standard half-coupler or trigger clamp (as shown) - the DD12 can be mounted either way up in portrait orientation, or in landscape orientation; the bracket allows the tilt to be adjusted in either case.



If more extreme angles of down-tilt are necessary, a second clamp position may be used in conjunction with the supplied spacer block.

Horizontal adjustment after mounting may be performed by not fully tightening the bolt securing the clamp; this will leave a small degree of play for accurate cabinet alignment.

For fixed installations, we suggest using a length of M12 (½") high tensile steel studding hanging vertically down and a pair of locking nuts to attach it to the bracket.

Fitting the bracket:

The only tool required to fit the bracket to the cabinet is a 5 mm hex (Allen) key. Attaching a pole mount adaptor or scaffold clamp will also require spanners or adjustable grips to suit the size of bolt used to attach the accessory to the bracket.

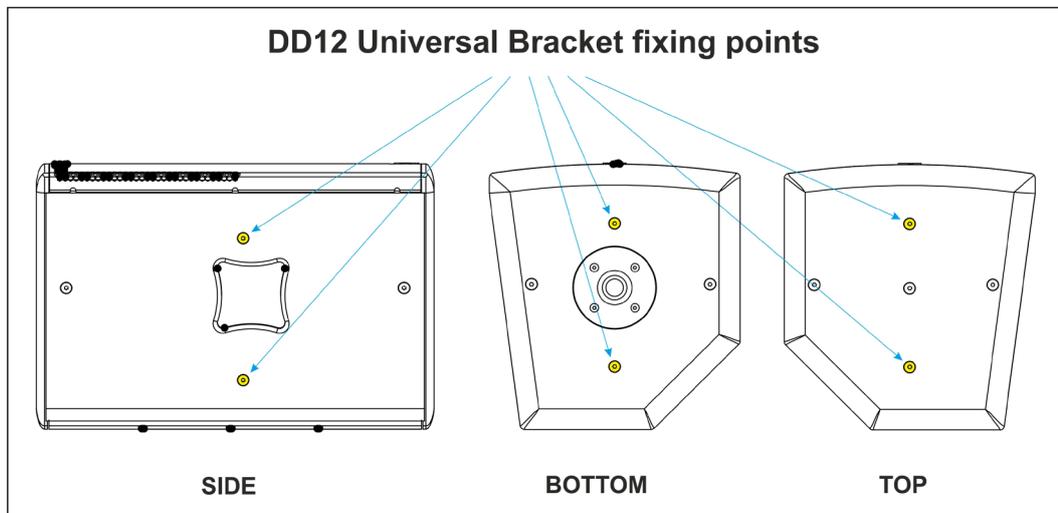
The bracket is supplied with two M8 x 35 mm countersunk head fixing screws (Part No. FAA08018), and the spacer block.



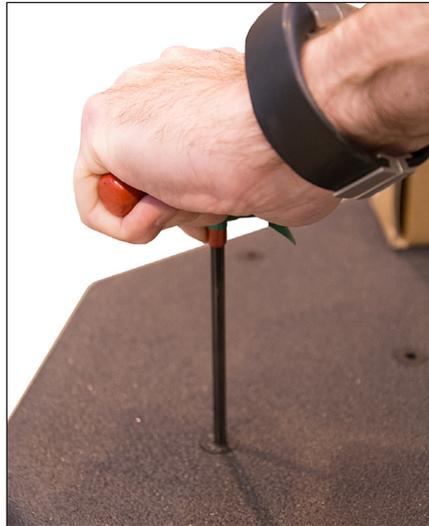
IMPORTANT: It is essential that the M8 x 35 screws are used to fit the bracket. Do not use the existing screws in the cabinet M8 inserts, which are too short, and are not rated for use with flown systems. A flown DD12 using these screws to fix the bracket will NOT be safe.



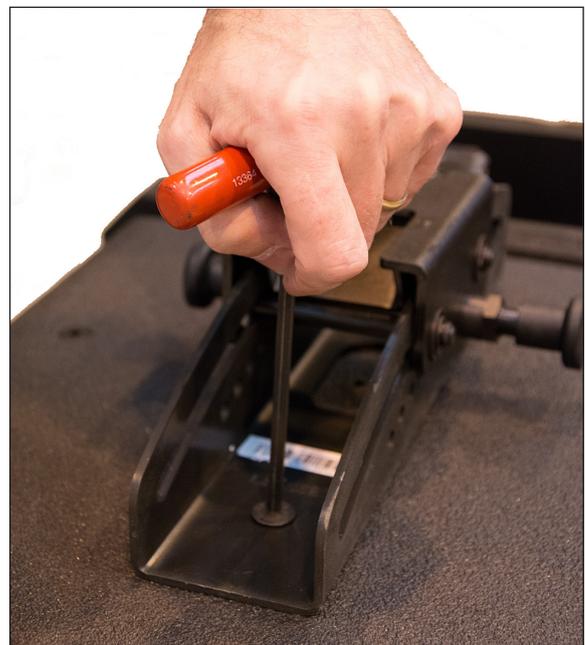
The bracket may be fixed to the cabinet in a number of different positions, on the top, bottom or side (relative to portrait orientation). The fixing locations are central in each face; note that the cabinet has additional M8 inserts which are not relevant to the bracket fixing. The bracket will only align correctly with the correct inserts.



Having determined the fixing location to be used, remove the existing screws and discard.



It is easier to fit a pole mount adaptor or scaffold clamp to the Universal Bracket before attaching it to the cabinet. Once this is complete, place the bracket in position and screw into place using the M8 x 35 mm screws supplied with the bracket. Ensure these are fully tightened.



YOKE



The DD12 Yoke (Part No. ASF20047) provides an alternative option for mounting. It is most suitable for fixed installations but can also be used in portable applications. It can be used to mount the speaker to a wall or ceiling. Horizontal adjustment is available in portrait orientation and vertical adjustment in landscape orientation. The yoke has a 13 mm (1/2") central fixing hole which can be used with a scaffold clamp or pole mount adaptor for portable applications with the cabinet in landscape orientation.



Fitting the yoke:

A 5 mm hex (Allen) key and a 13 mm spanner (wrench), socket or adjustable wrench are required to fit the yoke.

The yoke attaches to the cabinet top and bottom (relative to portrait orientation). The yoke is asymmetrical: one arm carries a spigot which locates in the top hat fitting in the bottom of the cabinet and the other a fixing plate with a hole, through which an M8 screw fixes to the central insert in the cabinet top.

The yoke is supplied with an M8 x 40 mm dia. handwheel, an M8 x 40 bolt, an 8 mm spring washer and an 8 mm plain washer.



Either the handwheel or the bolt may be used; the former is preferable if the cabinet is likely to require subsequent readjustment; use the bolt if the cabinet angle should not be altered. Note that both the handwheel and M8 bolt are high tensile steel, rated to take the weight of the cabinet. Do not use other fixings under any circumstances, as this may result in the assembly not meeting its safety rating.

For a permanent installation, it is easier to fit the yoke to the ceiling or wall and then attach the cabinet to the yoke. For portable situations, attach the scaffold clamp or pole mount adaptor to the yoke before attaching the yoke to the cabinet.

With the DD12 in portrait orientation, remove the existing M8 bolt from the centre position on the top of the cabinet.



To fit the yoke, the upper arm must be pivoted away to allow the spigot on the lower arm to be inserted into the top hat fitting in the base of the cabinet. Locate the two M8 x 70 mm bolts securing the upper arm to the main frame of the yoke. The corner bolt acts as a pivot; the second bolt (approx. 60 mm away) should be temporarily removed with the 13 mm spanner (wrench).



Mate the spigot on the lower arm with the top hat insert in the cabinet bottom.



Then attach the upper arm to the cabinet top through the central hole with either the handwheel or the M8 x 40mm bolt. Put both the spring washer (first), then the plain washer (second) onto the handwheel or bolt. Screw into the cabinet insert. Tighten the fixing sufficiently to make it safe but allowing any fine adjustment if required. Finally, replace the M8 x 70 mm bolt in the yoke upper arm to secure it and tighten.



FLIGHTCASE

A DD12 flightcase is available as an optional accessory. It is designed to hold two DD12s with a central section for two ASF20046 universal brackets. Brackets can be stored neatly in contoured timber sections with scaffold clamps or pole mount adaptors still attached if wished. Further storage space is provided for tools, tape or additional rigging hardware.



TRANSIT COVER

A tough canvas transit cover is available for the DD12. This drops over the top and has cut-outs to suit the handle contours on either side. It protects the cabinet while allowing easy transportation.

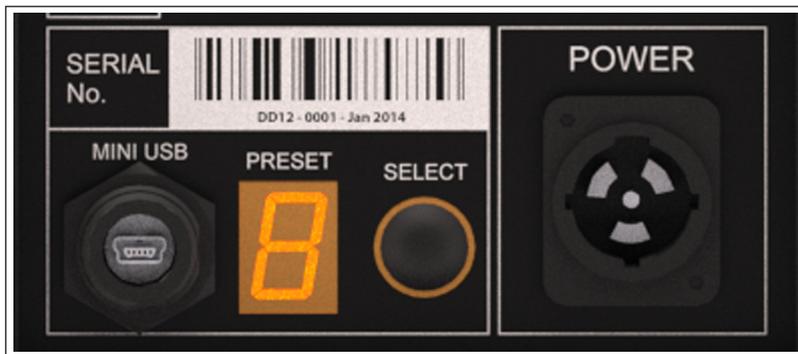
PRESET SELECTION

The DD12 has 15 internal Preset memories. The memories can hold a set of cabinet parameters which optimise the DD12 for use in a particular situation.

The first three memories (1 to 3) are pre-loaded with Factory Presets as follows:

- Preset 1 - for using the DD12 with a Pole Mount
- Preset 2 - for using the DD12 as a stage monitor
- Preset 3 - for using the DD12 as a Front Fill on a stage apron.

Presets are selected by pressing the Select button on the rear panel. The adjacent seven-segment LED display scrolls through the Presets with successive presses of the button, cycling back to the beginning after the last Preset.



To differentiate them from the memories holding Factory Presets (1, 2 and 3), the User memories use the first six letters of the alphabet, duplicated with a decimal point, instead of numbers, as follows:



The 12 User memories can be used to store your own presets, created using Vu-Net. For full details of Vu-Net control please see the Vu-Net User Guide available from the Martin Audio website www.martin-audio.com.

When shipped from the factory, User memories **a**, **b** and **c** contain duplicates of Factory Presets 1 to 3 respectively. All the other memories - **d** to **f** - are loaded with copies of Preset 1, for Pole Mount use. This should serve a good starting point for making parameter changes when creating your own Presets.

If a preset number is flashing it indicates that Vu-Net has modified a preset in some way. To restore a Preset to its unmodified state, press the Select button repeatedly until the display has cycled back to the original number or letter. This will recall the stored version and the number or letter will no longer flash - indicating that the Preset has been returned to its stored state. While the DD12 can be operated with a modified set of parameters, the internal Presets can only be overwritten by a command from the Vu-Net software.

VU-NET OPERATION

Vu-Net is Martin Audio's monitoring and control application. It may be used with the DD12, either stand-alone or in conjunction with other Martin Audio network-ready products such as MLA, MLA Compact, MLA Mini and PSX. Connection between a PC and the DD12 (or other system components) may be made:

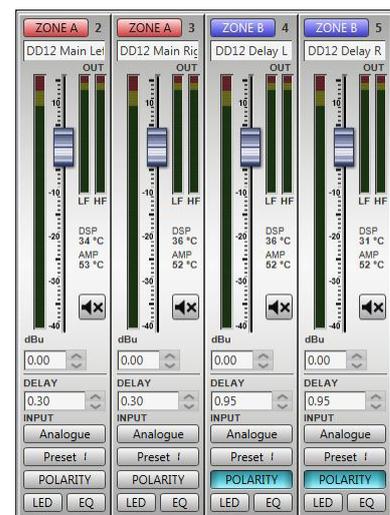
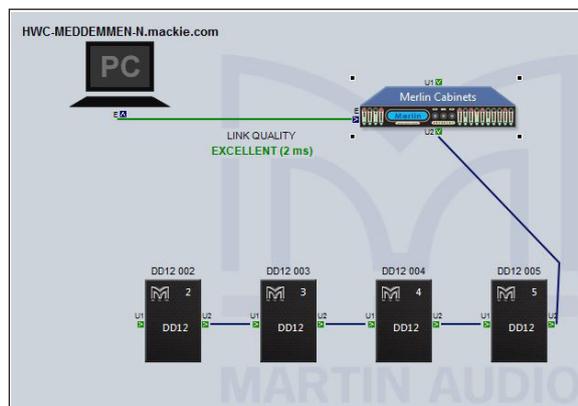
- directly on a one-to-one basis via USB (note the maximum USB cable length is 5 m),
- directly on a one-to-one basis via a Silex Ethernet-to-USB converter, or
- by using a Merlin system processor as a PC-to-network hub. When a Merlin is in use, interconnection between the various cabinets in the system is via the U-Net network protocol.

Vu-Net is also used to upload DSP parameters to the DD12, and to perform system firmware checks.

It is important to realise that once a set of DSP settings has been uploaded into the system, the presence or absence of a U-Net network in no way affects normal audio operation; cabinets will continue to pass audio with their last known configuration even without an operational U-Net network. This applies also to power-cycling: the DD12 retains the last-used set of parameters when powered down and reloads them when re-powered, whether they were a Preset or a modified set of parameters loaded from Vu-Net.

DSP functions which can be controlled via Vu-Net include level, mute, polarity, input selection, delay, high pass filter and 10 bands of parametric EQ. User Presets can be stored and recalled via the rear panel switch after the network is disconnected.

For full details please see the Vu-Net User guide which is available from the Martin Audio website.



Sample Vu-Net screens

DD12 SPECIFICATIONS

ACOUSTICAL	
TYPE	Compact, Differential Dispersion™, powered two-way system
FREQUENCY RESPONSE (see note 1)	65 Hz - 18 kHz ± 3 dB
MAXIMUM SPL @ 1m (see note 3)	125 dB continuous, 131 dB peak
DRIVERS	
LF	1 x 12"/300 mm (4"/100 mm voice coil), long excursion, neodymium magnet driver
HF	1 x 1"/25 mm exit (1/7"/44 mm voice coil), polyimide dome, neodymium magnet compression driver
RATED POWER (see note 2)	
LF	400 W AES, 1600 W peak
HF	50 W AES, 200 W peak
DISPERSION	
	Differential Dispersion: 110° - 60° horizontal, 60° vertical
AUDIO INPUT	
CONNECTORS	Female XLR input, male XLR link output
ANALOGUE INPUT IMPEDANCE	20 kohms balanced to ground
MAXIMUM ANALOGUE INPUT LEVEL	110 ohms balanced, receive and transmit termination
INTERNAL PROCESSING	
	Multi-channel DSP, programmable via network
	8 PEQ/shelving filters
	Up to 48 dB/Oct HPF
	Vanishing Point™ FIR crossover filters
	Up to 1 sec 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 Merlin controller
AMPLIFIER MODULE	
TYPE	2-channel switch-mode, class D
PEAK OUTPUT POWER	2100 W total 1400 W LF, 700 W HF
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 – 240 V ~ AC, 50 – 60 Hz
AC OVERVOLTAGE TOLERANCE	400 V AC
POWER FACTOR	> 0.95
NOMINAL POWER CONSUMPTION	200 W
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 weatherproof cowl and grille
IP RATING	IP24 (when used in portrait mode (i.e. upright), and with weatherproof cowl and grille fitted)
DIMENSIONS	(W) 360 mm x (H) 571 mm x (D) 584 mm (503 mm with cowl)
	(W) 14.2 in x (H) 22.5 in x (D) 15.1 in (19.8 in with cowl)
WEIGHT	26 kg (57.2 lbs)

Notes

- (1) Measured on-axis in free (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



WARRANTY

Martin Audio DD12 Loudspeaker Systems are warranted against manufacturing defects in materials or craftsmanship over a period of 5 years from the date of original purchase.

Martin Audio DD12 Amplifier modules are warranted against manufacturing defects in materials or craftsmanship over a period of 1 year from the date of original purchase.

During the warranty period Martin Audio will, at its discretion, either repair or replace products which prove to be defective provided that the product is returned in its original packaging, shipping prepaid, to an authorised Martin Audio service agent or distributor.

Martin Audio Ltd. cannot be held responsible for defects caused by unauthorised modifications, improper use, negligence, exposure to inclement weather conditions, act of God or accident, or any use of this product that is not in accordance with the instructions provided by Martin Audio. Martin Audio is not liable for consequential damages.

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