

MARTIN AUDIO CDD SERIES

CDD SERIES USER GUIDE



Table of Contents

APPROVALS	4
UNPACKING THE UNIT.....	4
INTRODUCTION	5
COAXIAL DIFFERENTIAL DISPERSION TECHNOLOGY	6
THE CDD RANGE	7
Full-range systems:.....	7
Subwoofers:.....	7
CDD RANGE ACCESSORIES	8
Mounting accessories.....	8
WEATHERISED VERSIONS	9
CDD MOUNTING HARDWARE	10
WALL AND CEILING MOUNTING BRACKETS.....	10
Model CDD5:.....	10
Models CDD6 and CDD8:.....	11
Models CDD10 and CDD12:.....	11
YOKE ASSEMBLIES.....	12
Model CDD10:.....	12
Model CDD12:.....	12
Model CDD15:.....	12
EYE BOLTS.....	12
VERTICAL AND HORIZONTAL DEPLOYMENT	13
GRILLE REMOVAL AND REPLACEMENT.....	14
BADGE ROTATION.....	16
CHOOSING A MOUNTING LOCATION	17
EASE data.....	17
FIRST AND SECOND FIXING.....	18
WALL MOUNTING – PROCEDURE.....	19
CDD6, CDD8, CDD10 and CDD12.....	24
CEILING MOUNTING – PROCEDURE.....	29
CDD6 and CDD8.....	32
MOUNTING WITH A YOKE ASSEMBLY.....	36



FLYING CDD SERIES CABINETS	40
CSX SERIES SUBWOOFERS - INSTALLATION.....	42
FLYING CSX SUB-WOOFERS	42
SYSTEM CONNECTIONS.....	43
WR (WEATHERISED) MODELS ONLY	43
IMPEDANCES	44
70/100 V-LINE OPERATION (MODEL CDD5TX and CDD6TX ONLY).....	44
SYSTEM EXAMPLES.....	45
1 x Stereo.....	45
2 x Stereo + 1 Sub	46
3 x Stereo + 2 Sub	46
MARTIN AUDIO DX0.5 LOUDSPEAKER MANAGEMENT SYSTEM.....	47
CDD PRESET LIST	47
USING ALTERNATIVE CONTROLLERS.....	48
AMPLIFIERS – RECOMMENDATIONS	49
SPECIFICATIONS.....	50
CDD5, CDD6, CDD8.....	50
CDD10, CDD12, CDD15	51
CSX112-F, CSX212-F.....	52
CSX118-F, CSX218-F.....	53
Technical Drawings	54
CDD5	54
CDD6	55
CDD8	55
CDD10.....	56
CDD12.....	56
CDD15.....	57
CSX112-F.....	58
CSX212-F.....	58
CSX118-F.....	59
CSX218-F.....	59
SPEAKER BRACKET TEMPLATES.....	60
CDD5 Wall Bracket.....	60



CDD5 Ceiling Bracket..... 61

CDD6 & CDD8 Wall Bracket..... 62

CDD10 & CDD12 Wall Bracket 63

WARRANTY 64

COPYRIGHT AND TRADEMARKS 64

APPROVALS



This equipment conforms to the requirements of the EMC Directive 89/336/EEC, amended by 92/31/EEC and 93/68/EEC and the requirements of the Low Voltage Directive 72/23/EEC, as amended by 93/68/EEC.

EMC Emission: EN55103-1:2009

EMC Immunity: EN55103-2:2009

Safety: IEC60065:2002 + A2:2010

UNPACKING THE UNIT

Thank you for purchasing a Martin Audio CDD Series speaker system. Every Martin Audio loudspeaker is built to the highest standard and thoroughly inspected before it leaves the factory. After unpacking the system, examine it carefully for any signs of transit damage and inform your dealer if any is found. It is suggested that you keep the original packaging so that the system can be repacked at a future date if necessary. Please note that neither Martin Audio nor its distributors can accept any responsibility for damage to any returned product which arises through the use of non-approved packaging.



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.



INTRODUCTION

Thank you for purchasing this Martin Audio CDD loudspeaker system.

The Martin Audio CDD Series has been designed to fulfil the need for high performance sound in pubs, bars, restaurants, retail premises, nightclubs, conference facilities, theatres, educational institutions, places of worship, museums, exhibition centres and cruise ships, in an ultra-compact package.

CDD speakers deliver the highest quality audio over a wide area, with consistent coverage throughout the venue.

The cabinets are styled to be architecturally unobtrusive. CDD enclosures (except for the CDD5) are constructed from rigid, moulded UPM Formi, a fibre composite material combining stiffness with excellent damping properties. The larger models (CDD8 upwards) have birch ply baffles and all models feature flush, acoustically transparent steel grilles. Subwoofers are built in heavily braced MDF enclosures. Enclosures come in either a white or black finish; with other RAL colours available to order.

The CDD range of loudspeakers use two-way, full-range co-axial drivers, incorporating Martin Audio's exclusive Differential Dispersion[®] horn technology. Passive crossovers optimised for the drivers are fitted, obviating the need for bi-amping. The crossover frequency is between 1.6 kHz and 2.5 kHz, depending on model.

The CDD range consists of six full-range units, with drivers from 5" to 15". These are supplemented by a range of four CSX subwoofers with single or dual 12", or single or dual 18" LF drivers. Systems may be used individually or in multiples to suit a wide variety of applications. Link connectors are fitted to facilitate daisy-chain wiring.

A version of the CDD5 is also available for 70/100 V-line operation. This model, the CDD5TX, includes a high quality tapped transformer and a power setting switch, to allow the speaker to be used with the 70 V-line or 100 V-line distribution systems used for announcements and background music in office complexes, hotels and similar large buildings.

A wide range of installation accessories is also available, permitting wall, ceiling or flown mounting. Mounting hardware is suitable for first and second fix construction industry conventions.

This User Guide provides a detailed explanation of the CDD'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.

COAXIAL DIFFERENTIAL DISPERSION TECHNOLOGY

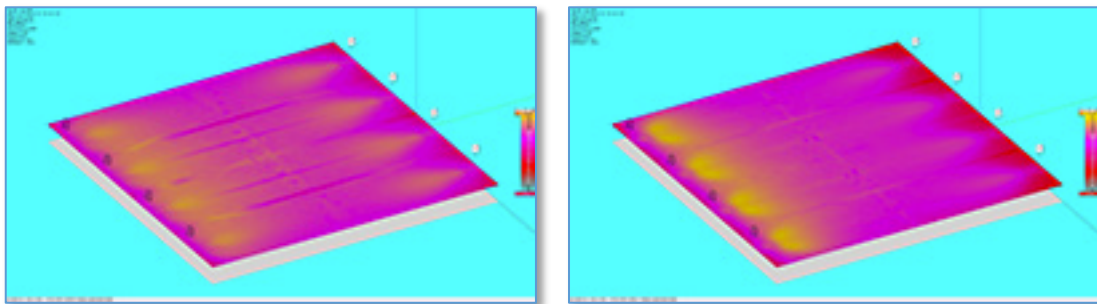
All CDD Series full-range models feature Martin Audio's unique, patent-pending Coaxial Differential Dispersion™ technology. CDD systems augment the 'point-source' benefits of coaxial drivers with the consistency of coverage which Differential Dispersion technology can deliver.

Non-coaxial systems can suffer from uneven frequency response in the crossover region because of interference between the LF and HF sections; depending on the listening position, this causes off-axis variations, particularly close to the loudspeaker. In contrast, coaxial systems aim to sum LF and HF contributions at all positions off-axis, even close-up.

A disadvantage of conventional coaxial devices can be HF beaming, where the HF dispersion reduces at higher frequencies. This is primarily because the HF energy emerges through a narrow tube in the pole-piece of the magnet system. CDD Series coaxial devices overcome this by the use of a static waveguide that merges seamlessly with the unique cone shape — maintaining the dispersion pattern even at very high frequencies.

A Differential Dispersion horn has a trapezoidal dispersion pattern in both vertical and horizontal planes which covers the target area more evenly than a system with a conventional, fixed dispersion type horn. With a conventional horn, the speaker is usually placed above head height and aimed towards the centre of the audience. This produces an imperfect coverage pattern which misses out some areas — particularly side areas close to the loudspeaker.

In contrast, a CDD Coaxial Differential Dispersion system produces a rectangular coverage pattern extending to all corners of the audience area, while wide horizontal coverage is achieved very close to the loudspeaker. The consistency of frequency response and SPL thus achieved throughout the audience area is exceptional. The improved coverage close to the source also means that CDD speakers can often be spaced further apart, reducing overall speaker count.



The two EASE plots shown above illustrate the coverage obtained from four CDD speakers (on the left of the plot) as compared with that obtained from four equivalent Martin Audio AQ Series speakers (on the right). The plots are taken at 4 kHz (left) and 8 kHz (right), with all other measurement parameters remaining constant. It can be seen that the CDD coverage is significantly more even across the width of the audience area at these important mid-range frequencies.

THE CDD RANGE



The CDD range consists of six full-range systems and four sub-woofers (the CSX Series), as summarised below. Please refer to “Specifications” on page 48 for full technical specifications for each model (DX0.5 System controller also shown).

Full-range systems:

	Model	LF driver	HF driver	LF -3dB point	Power rating
A	CDD5*	5" (125 mm)	0.7" (19 mm)	100 Hz	100 W
B	CDD6*	6.5" (165 mm)	1" (25 mm)	80 Hz	150 W
C	CDD8	8" (200 mm)	1" (25 mm)	70 Hz	200 W
D	CDD10	10" (250 mm)	1" (25 mm)	65 Hz	250 W
E	CDD12	12" (300 mm)	1" (25 mm)	62 Hz	300 W
F	CDD15	15" (380 mm)	1.4" (35 mm)	55 Hz	400 W

* Model CDD5TX and CDD6TX (70/100 V-line version) also available

Subwoofers:

	Model	LF driver (dia.)	LF -3 dB point	Power rating
G	CSX112	1 x 12" (250 mm)	48 Hz	400 W
H	CSX212	2 x 12" (250 mm)	48 Hz	800 W
I	CSX118	1 x 18" (460 mm)	40 Hz	1000 W
J	CSX218	2 x 18" (460 mm)	35 Hz	2000 W

Colour coding - all CDD and CSX models are available in:

- white - suffix 'W' is added to model number
- black - suffix 'B' is added to model number
- custom RAL colour - suffix 'RAL' is added to model number

All CSX models may be ordered with flying points pre-fitted; add '-F' to model number.



CDD RANGE ACCESSORIES

Mounting accessories

Several mounting options are available for the various models in the CDD range. These may be summarised as follows:

- Wall mounting – brackets are available for all models up to the CDD12.
- Ceiling mounting – brackets are available for Models CDD5, CDD6 and CDD8.
- Yoke assemblies – suitable for either wall or ceiling mounting - are available for Models CDD10, CDD12 and CDD15.
- All models may be flown using standard rigging procedures; eye bolts are available for all models. Note that CSX subwoofers may also be flown (see “CSX Series subwoofers - installation” on page 39).

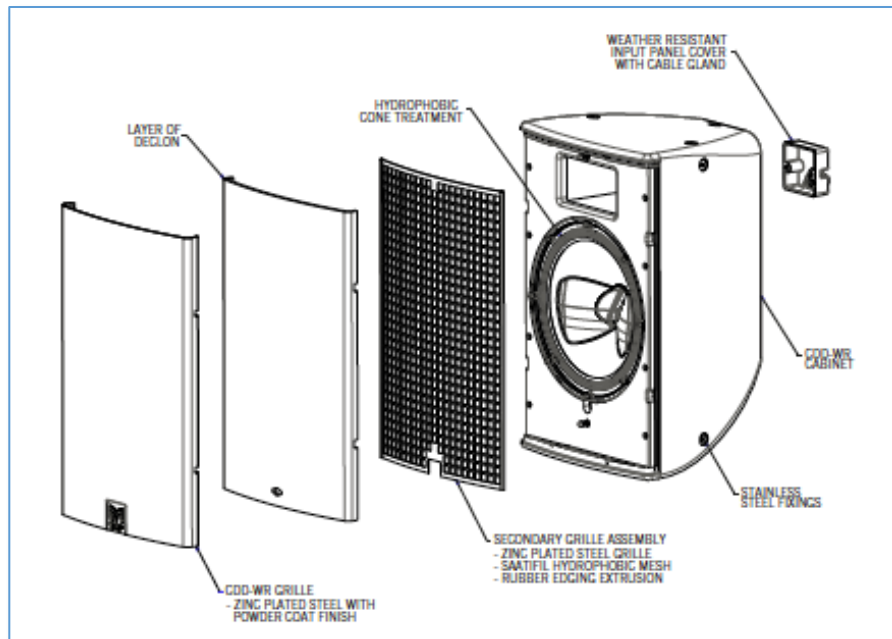
Brackets and yoke assemblies are available in black or white to match the standard enclosure finishes.

NOTE: A venue with Martin Audio AQ Series speakers already installed may be easily upgraded to CDD Series speakers, as the existing AQ Series wall and ceiling mounting brackets can be retained and re-used; the mounting holes in the enclosure fixing plates are compatible with the CDD series.

WEATHERISED VERSIONS

All CDD and CSX models are available with factory-fitted weather proofing components: these may be denoted by the suffix “-WR” to the model number. Weatherised versions are available in both black and white finishes.

Weatherised versions of CDD cabinets include two additional layers of protection behind the front grille: first there is a Declon® (synthetic fibre) layer, below which there is a secondary zinc-plated steel grille assembly with a hydrophobic (water-repellent) coating and a rubber edge extrusion. The LF driver cone itself is also treated with a hydrophobic coating. The rear connection panel is protected by a gasketed cover with a cable gland, and the fixing points are of stainless steel. These constructional differences allow the WR versions to meet environmental testing to IP Rating IP54.



Weatherised versions of CSX subwoofers feature similar protection for the rear connection panel, stainless steel fixing points, and zinc-plated front grilles. They are tested to meet environmental rating IP24.

CDD MOUNTING HARDWARE

WALL AND CEILING MOUNTING BRACKETS

All CDD Models up to CDD12 may be wall mounted and models up to CDD8 ceiling mounted, using the appropriate optional bracket. Brackets are available for most models, as summarised on the previous page. (Note that Models CDD10, CDD12 and CDD15 may also be wall or ceiling mounted using a yoke assembly – see page 11.)

All mounting brackets allow CDD enclosures to be mounted in either vertical (“portrait”) or horizontal (“landscape”) orientation. **See page 16 for important information regarding driver rotation for use in horizontal orientation.**

The wall mounting brackets include pan and tilt adjustments to permit optimum alignment, while the ceiling brackets (CDD6 and CDD8) allow vertical tilt angle to be set. To help installers complete a neat fitment, the fixing plate of all the brackets includes a 19 mm dia. cable access hole for the connection(s).

NOTE: To assist with first fix installation, mechanical drawings and drilling templates for all ceiling and wall mounting brackets may be found in the Technical drawings section of this Guide, see page 57.

Model CDD5:

NOTE: Model CDD5 speakers are packed and shipped in pairs, complete with wall mounting brackets finished in either black or white to match the speakers. (Note that CDD5s in custom RAL colours will be supplied with black brackets.) No additional mounting hardware is required if the speakers are to be wall mounted.



Ceiling bracket – Part Nos. CDDCB5B (black), CDDCB5W (white):

Model CDD5 speakers may alternatively be ceiling mounted using these optional brackets, which mate with one part of the wall mounting brackets supplied with the speakers.



Models CDD6 and CDD8:

The wall and ceiling brackets for Models CDD6 are also used with Models CDD8.

Wall bracket – Part Nos. WB6/8B (black), WB6/8W (white)



Ceiling bracket – Part Nos. CDDCB6/8B (black), CDDCB6/8W (white)

**Models CDD10 and CDD12:**

The wall and ceiling brackets for Models CDD10 are also used with Models CDD12. These brackets are identical in design to the respective brackets for the CDD6/CDD8 and are the larger brackets pictured above.

Wall bracket – Part Nos. WB10/12B (black), WB10/12W (white)

Ceiling bracket – Part Nos. CDDCB10/12B (black), CDDCB10/12W (white)

YOKE ASSEMBLIES

Yoke assemblies are available for CDD Models CDD10, CDD12 and CDD15. In the case of the CDD15, a yoke assembly is the only mounting bracket available.

For fixed installations, the yoke assembly must be installed horizontally, allowing tilt adjustment. Two fixing holes are provided in the main strut for this purpose.

Alternatively, if the cabinet is to be suspended from a scaff pole or other standard rigging, the yoke may be fitted with a half-coupler clamp using a third (centrally-located) 13 mm dia. hole in the yoke's main strut.

See page 13 for important information regarding driver rotation for use in horizontal orientation.

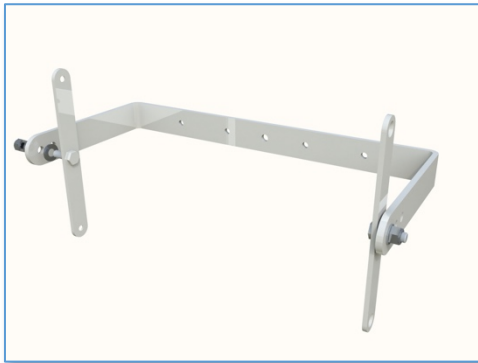
Note that the yoke assemblies for the CDD10 and CDD15 are identical in design to the yoke assembly for the CDD12; only that for the CDD12 is pictured below.

Model CDD10:

Yoke Assembly CDDYA10B (black), CDDYA10W (white)

Model CDD12:

Yoke Assembly CDDYA12B (black), CDDYA12W (white)



Model CDD15:

Yoke Assembly CDDYA15B (black), CDDYA15W (white)

EYE BOLTS

All CDD Series models may be flown using optional eye bolts

Shouldered Eye bolts, Part No. HTKCT05 (8 mm dia.), HTKCT06 (10 mm dia.)

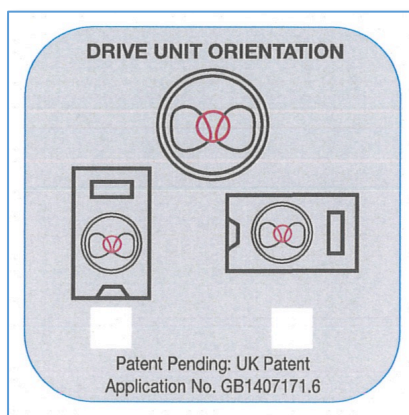


VERTICAL AND HORIZONTAL DEPLOYMENT

CDD speakers are shipped from the factory ready for deployment in vertical – or “portrait” – orientation. If the installation favours horizontal orientation, the coaxial driver must be rotated through 90° to maintain the correct dispersion patterns. Inadequate coverage and generally sub-optimal performance will result from mounting a CDD speaker with the driver incorrectly orientated.



It can be seen from the above views that the CDD’s coaxial driver is not symmetrical. For correct performance, the driver should always be orientated as shown, with the “butterfly wings” of the HF driver assembly biased towards the bottom of the enclosure. A graphic can be found on the rear of the cabinet to confirm the correct orientation:



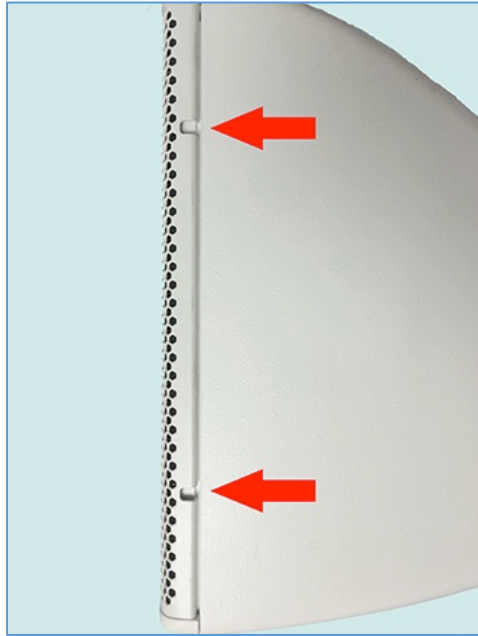
To rotate the driver, proceed as follows:

1. Place the enclosure face-up on a bench, table or other suitable flat surface.
2. Follow the instructions for grille removal in the section below “Grille removal and replacement”.
3. Using a No. 2 Pozzi screwdriver (CDD5) or a hex key (CDD6: 2.5 mm AF; CDD8/10: 4 mm AF; CDD12/15: 5 mm AF), remove the screws securing the driver to the baffle board. There will be between four and eight screws depending on the particular CDD model.
4. Gently lift the driver assembly out, rotate it through 90° and replace it.
5. Refit the screws removed in Step 3.
6. Follow the instructions for grille replacement in the section below “Grille removal and replacement”.
7. Follow the instructions in the section below “Badge rotation”.

Note that if, for any reason, it is necessary to mount the CDD speaker in portrait mode “upside-down”, the driver must be rotated through 180° using the same procedure described above.

GRILLE REMOVAL AND REPLACEMENT

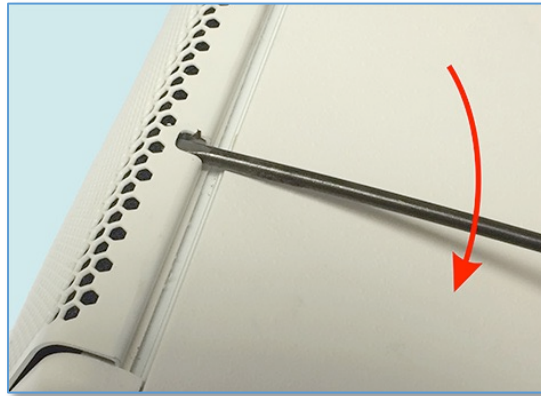
Grilles on CDD Series cabinets are designed to be easy to remove to facilitate driver rotation. No screws are used to hold them in place; they are manufactured with a natural spring which holds them in place in slots in each side of the cabinets. The grilles have two or three gaps in the sides into which an appropriately-sized flat-bladed screwdriver can be inserted to assist in removal.



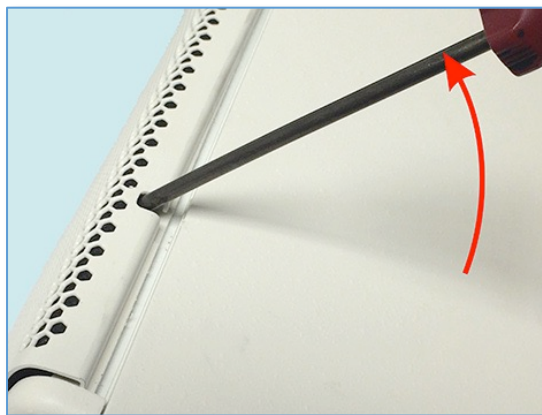
Insert the screwdriver blade into one of the gaps - either at the top or bottom of the cabinet (don't start in the middle).



Gently push the handle down slightly. This will ease the grille out of the slot.



Now lift the handle up; this will ease the grille forward slightly to prevent the return on the grille dropping straight back into the slot:



Repeat this process for the remaining gaps in the grille to ease it out of the slot all the way up one side of the cabinet; when you get to the final gap the grille should pop out and away from the front of the cabinet.

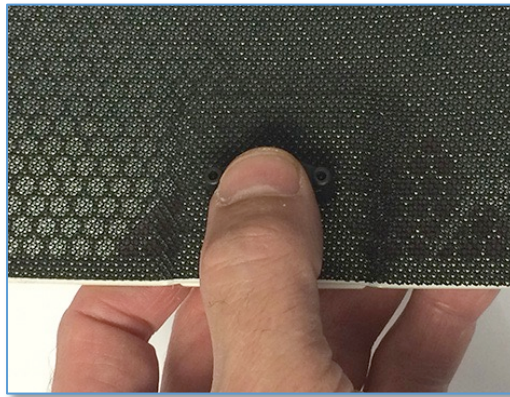
To replace the grille, first insert one side into the slot on one side of the cabinet. Make sure the return on the grille is completely engaged in the slot. Push on the front of the grille with the flat of your hand, which will encourage the other edge of the grille to locate on the side of the cabinet close to the slot. Now push the edge of the grille back starting at the top or the bottom to engage the return in the slot; you may need to do this a little at a time, working down the length of the grille until it pops into place.

BADGE ROTATION

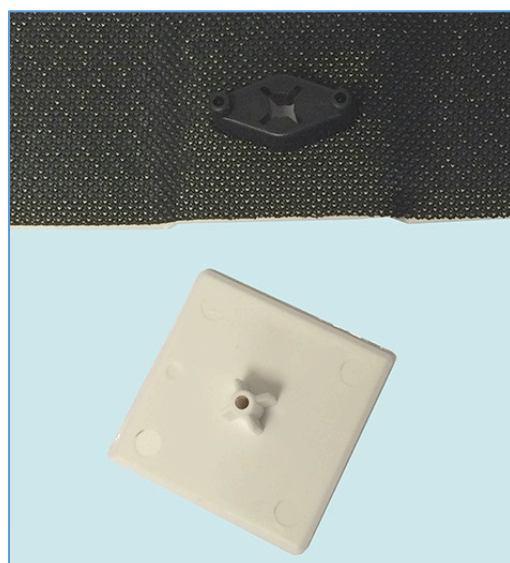
The badge can also be removed and rotated. It has mouldings on the mounting spigot to ensure that it can only be repositioned in one of four positions (90° apart). It is recommended that you change the badge position at the same time as the grille is removed to rotate the driver. On the back of the grille you will see the badge mounting spigot showing just above the plastic fitting into which it locates:



Push down on the spigot with your thumb (you may need to use something a little harder such as the handle of a screwdriver)...



...and the badge will pop out of the housing:

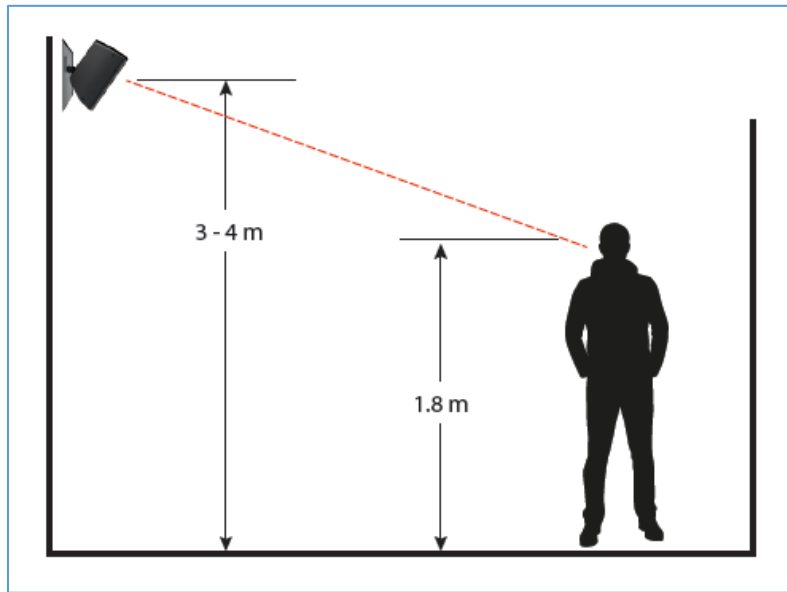


It can be rotated 90 or 180° to suit the cabinet deployment and pushed back into place. It is simply held in place through friction so push it firmly in place to ensure that it doesn't fall out.

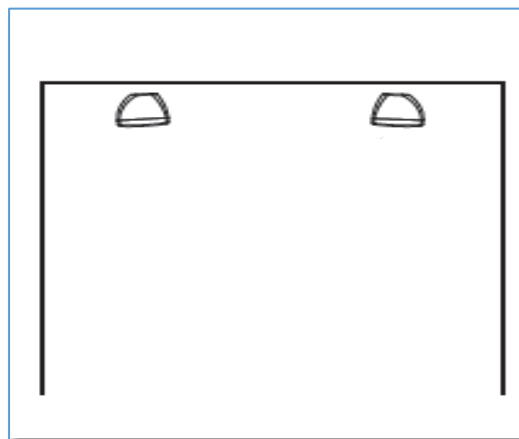
CHOOSING A MOUNTING LOCATION

CDD Series loudspeakers should be mounted above head height – high enough to clear peoples’ heads for clean coverage but low enough to avoid over-exciting room resonances.

Tilt angles should be set so that the loudspeaker’s maximum output (usually on-axis of the loudspeaker centre) is aimed at the furthest listener across the room.



The horizontal dispersion of CDD Series speakers produces a square coverage pattern and therefore to maximise efficiency of coverage we recommend mounting speakers as below.



NOTE: CDD Series speakers are **NOT** designed to be placed adjacent to one another as there is likely to be an overlap in horizontal coverage in part of the intended area which could lead to unwanted comb filtering.

EASE data

To assist system design and speaker placement within a venue, high-resolution GLL files for CDD Series models may be downloaded from the Martin Audio website: www.martin-audio.com

FIRST AND SECOND FIXING

Construction industry practice frequently favours “first” and “second” fixing stages. This system gives installers the advantage of being able to pull cables and make primary fixings at an earlier stage of building completion and avoids the potential problems of leaving expensive and delicate audio equipment in-situ while building and decoration work is still on-going.

All CDD Series mounting brackets – wall, ceiling and yokes – disassemble into separate “first fix” and “second fix” components. This means that part of the bracket may be secured to the wall or ceiling at first fix, without the necessity of having the cabinet on site. The rest of the bracket can then be fitted to the cabinet at floor level at second fix, and then the two parts of the bracket easily mated.

The two fixing stages may be summarised as follows:

- **First stage fixing** – Fix “first fix” sections of wall or ceiling brackets at desired locations. Run speaker cables to speaker locations, using cable access holes provided in brackets. If using yoke assemblies for a fixed installation, fit the main yoke in position; in this case the large diameter centre hole provided for a scaffold clamp may be used as an access hole for the cable(s).

IMPORTANT INFORMATION

Consult a qualified structural engineer with a full knowledge of the building, its load ratings and your intended loudspeaker installation plans before commencing any installation. The type and size of fixings used must take into account both the weight of the enclosure and the construction of the wall or ceiling.

- **Second stage fixing** – Attach “second fix” sections of brackets to rear of cabinets. For yoke assemblies, fit strap bars to cabinet. Raise cabinets to height and mate with first fix bracket sections. Connect up in all cases. Adjust pan and/or tilt as required.

IMPORTANT INFORMATION

In some cases, local regulations may require a safety bond (e.g., wire or chain) to form part of the final fix. The complete installation should be checked and approved by a qualified structural engineer and a qualified electrical safety consultant before being signed off.

WALL MOUNTING – PROCEDURE

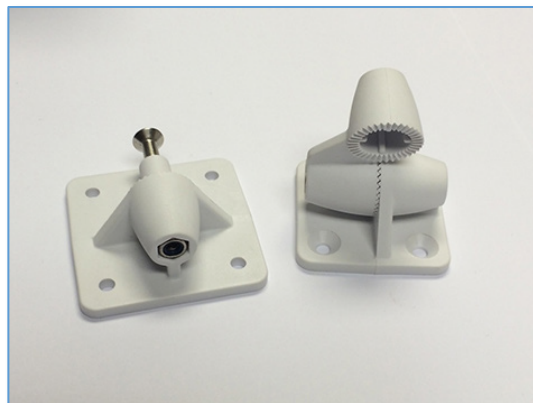
CDD5 only

A pair of CDD5 wall brackets is supplied with the speakers. The bracket is a three-part design which allows adjustment in both horizontal and vertical planes if required.



First fix:

First decide whether adjustment is needed in one or both planes, and then disassemble the bracket. To obtain both horizontal and vertical adjustment, separate the wall section of the bracket using a 4 mm hex key. The wall section is easily identified as it has the larger flange with fixing holes on 45 mm centres; the cabinet section is smaller and has countersunk holes on 35 mm centres.



If only one plane of adjustment is required - either vertical or horizontal - remove the link section in the middle; this is also secured with a 4 mm hex head bolt.



Fit the wall bracket in the orientation shown below for operation with adjustment in two planes, or for horizontal adjustment only:



If only vertical adjustment is required, fit as shown below:



Fixings appropriate for the wall surface and weight of the cabinet (2.7 kg) must be used to ensure a safe and secure installation. It is good practice to terminate the speaker cables with the mating Phoenix connectors (supplied with the cabinets) at this stage.

If second fix is to follow at a later date, it is a good idea to screw the pivot bolt into the wall bracket so it does not get lost.

Second fix:

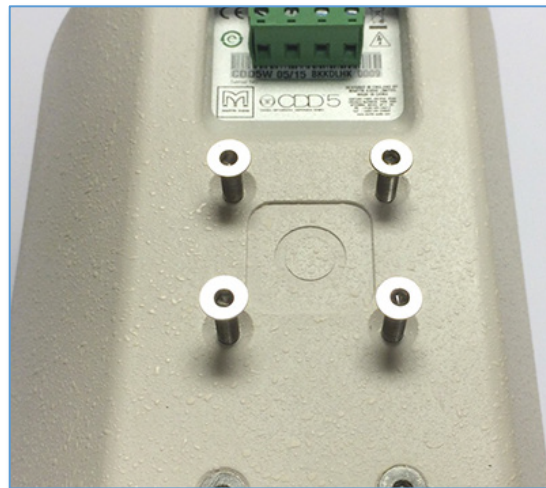
The CDD5 may be mounted in either “portrait” (vertical) or “landscape” (horizontal) orientation. This decision is purely based on the desired visual impact in the space in which the speakers are being installed.

Note that is vital that the driver is orientated to suit the deployment used. “Out of the box” the driver is in the correct position for “portrait” use and must be rotated through 90° for “landscape” use. Please see page 12 for details of driver rotation.

For “portrait” use, the cabinet bracket section is attached using the four “lower” fixing points:



For “landscape” use, the four “upper” fixing points (as viewed in portrait orientation) must be used:



The cabinet bracket section must be attached in an orientation to suit the desired degree of adjustment. First remove the four screws using a 3 mm hex key. For installation with two planes of adjustment, or vertical adjustment only, the cabinet bracket must be attached as shown below:



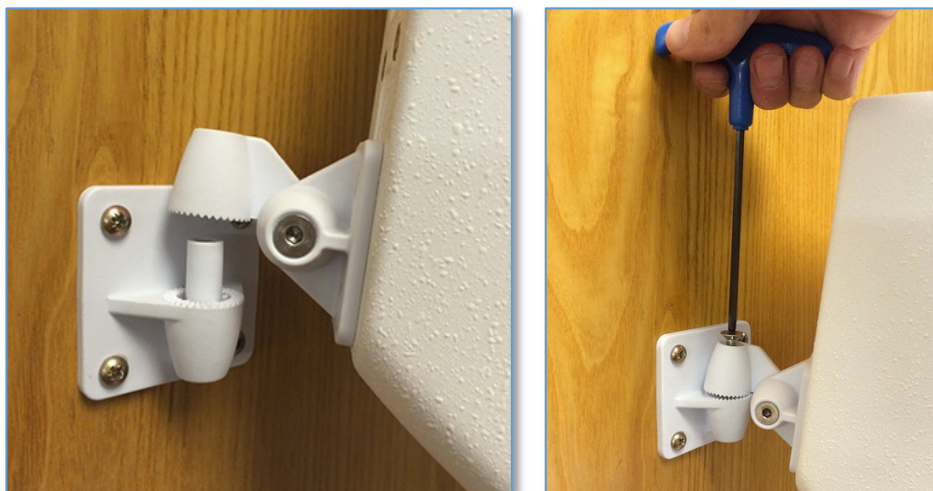
If only horizontal adjustment is required, the bracket section should be fitted like this:



(Note that the two pictures above assume portrait orientation.)

Fix the bracket in place using the screws removed from the cabinet. Tighten these securely.

Remove the pivot bolt from the wall bracket section. Offer the speaker up to the wall bracket section; if this is in the vertical position as at page 18, the cabinet bracket section or link bracket will hook securely in place, freeing up both hands for re-fitting the securing bolt:



If the wall bracket is in the horizontal position (allowing only vertical adjustment), simply slide the two sections of the bracket together and insert the pivot bolt while supporting the speaker with the other hand. The link section of the bracket assembly is not required for this mounting option.

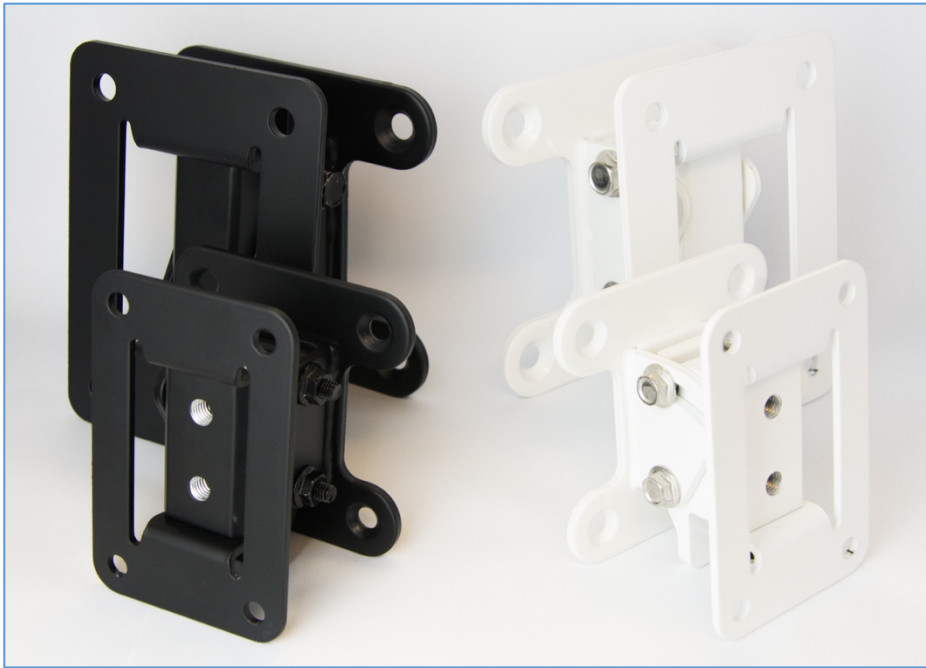
Do not fully tighten the bolt at this stage, leave a little play to allow final adjustment. If the fitment includes the link bracket, this may also be loosened slightly for final adjustment. The CDD5 can now be positioned using the locating radial teeth on the bracket to hold it in position, these will allow adjustment in increments of approximately 10° in both horizontal and vertical planes. Final adjustment is best done with an audio source to check the coverage. When the final position is found, tighten the securing bolt(s).



CDD6, CDD8, CDD10 and CDD12

The WB6/8(B or W*) and WB10/12 (B or W*) are two-part wall brackets comprising a wall mounted section and a section fitted to the cabinet which is easily located onto the wall section taking the weight of the cabinet while it is fixed permanently in place. As the numbers suggest, WB6/8 is suitable for CDD6 and CDD8 and WB10/12 is designed for use with CDD10 and CDD12. The design of both brackets is identical, they are simply scaled to suit the size and weight of the cabinets.

* B and W suffixes denote colour



The square cabinet fixing points allow the brackets to be used for wall mounting in either portrait or landscape mode. **Do not forget that it is important to rotate the driver and badge through 90° when using CDD in landscape mode, please see the chapter on grille removal and horn rotation for details on how this is achieved.**

Installation is a two-part process in common with standard first fix / second fix procedures, installation using both sizes of brackets is identical, the WB10/12 bracket is just larger than the WB6/8 version.

First fix:

The first step is to separate the two halves of the bracket. There are two horizontally mounted nut and bolts holding the two halves together. The upper one which sits in a curved slot does NOT need to be removed. Unscrew the lower bolt and the cabinet bracket will lift off the wall bracket



First fix is to secure the wall section of the bracket. This is the part with four mounting holes, a vertical bolt holding the section which allows horizontal adjustment and the slot into which the cabinet bracket bolt sits. Use appropriate wall fixings suitable for the composition of the wall. These must be of sufficient strength to support the weight of the speaker, 5.5Kg (6.6lbs) for the CDD6, 9.5Kg (21lbs) for the CDD8, 15.3Kg (33.7lbs) for the CDD10 and 19.3Kg (42.5lbs) for the CDD12.



It is also good practice to terminate the speaker cables with the Phoenix connectors at this stage.

Second fix:

Next step is to attach the cabinet section of the bracket to the CDD. This is the bracket with four countersunk fixing holes on a square pattern with the horizontal bolt in the curved slot.

The rear of the cabinet has six countersunk bolts fitted designed for use with the mounting brackets. For portrait mode remove the lower 4 bolts, for landscape mode remove the middle four. Position the bracket over the required holes orientated to suit the orientation that is being used and screw into place tightly using the bolts removed from the cabinet.



For horizontal (landscape) mode use the four holes closest to the middle and attach the bracket at right angles to the cabinet. Note that CDD6 only has four fixing holes not the six on the CDD8, 10 and 12..



You are now ready to fit the speaker to the wall. Offer the speaker up to the bracket so you can hook horizontal bolt in the curved slot onto the notch on the ball bracket. Make sure that you follow appropriate safety measures if you are working at height such as using a scaffold tower or lifting platform which allows you to safely use both hands for this.



Final adjustments can now be made. Horizontal (pan) adjustment is available by rotating assembly on the vertical bolt, when you're happy with the angle, the vertical securing bolt can be tightened with an M5 hex key (WB8/6) or an M6 hex key (WB10/12) to lock the position.



Vertical (tilt) adjustment is made by adjusting the grub screw:



Once the vertical position is fixed the two horizontal bolts can be tightened, this is best achieved by using a socket set with an extender bar to reach the bolt heads.

CEILING MOUNTING – PROCEDURE

CDD5 only

The optional CDDCB5(B or W*) ceiling bracket may be used in conjunction with the wall brackets supplied with the CDD5 speakers to mount the CDD5s on a ceiling.

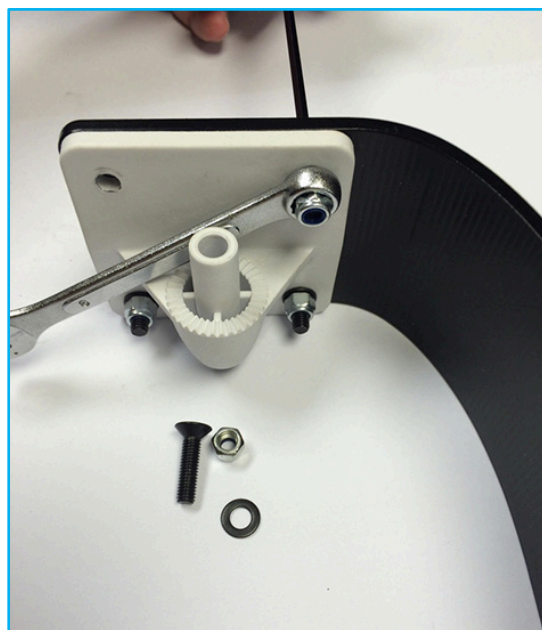


* B and W suffixes denote colour

First fix:

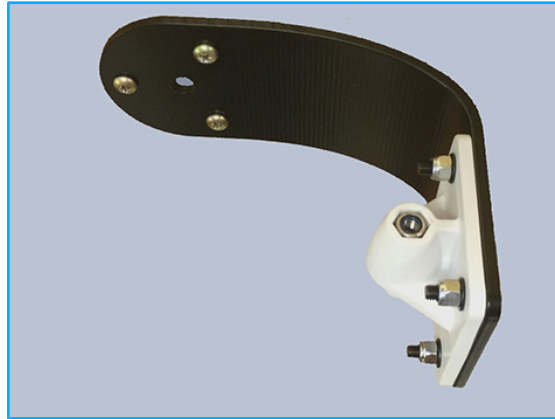
As with wall mounting, first decide whether adjustment is needed in one or both planes, and then disassemble the wall bracket. In most cases vertical adjustment only will be needed, as horizontal adjustment will be obtained by mounting the ceiling bracket at the correct angle. For vertical adjustment only, remove the link section of the wall bracket. If both horizontal and vertical adjustment is required, separate the wall section of the bracket using a 4 mm hex key. The wall section is easily identified as it has the larger flange with fixing holes on 45 mm centres; the cabinet section is smaller and has countersunk holes on 35 mm centres.

Now bolt the wall section of the bracket to the ceiling bracket using the four M5 screws, plain washers and Nyloc nuts supplied with the ceiling bracket. (Note that although the ceiling bracket is available in black or white and you would usually select the colour to match the cabinet, we have used a black bracket with a white CDD5 for better contrast in our photographs.)



The ceiling bracket assembly may now be fixed to the ceiling. There are three 5.5 mm holes and a central 8.5 mm hole in the bracket for this purpose. It is essential that appropriate fixings are used to allow safe and secure attachment to the ceiling material, particularly as these may be fitted overhead public areas. The method of fixing will depend on the ceiling construction. You can use the larger central 8.5 mm hole as the principal fixing initially: this lets you adjustment the bracket to obtain the correct horizontal coverage by pivoting it on the single mounting. When the position is correct, tighten it, and add further fixings to the other three holes to ensure a safe and secure mounting. Alternatively, if an adequate fix can be obtained using the three smaller holes alone (e.g., by using wood screws into a batten above plasterboard), it may be possible to use the 8.5 mm centre hole for cable routing.

In any case, it is good practice to terminate the speaker cables with the Phoenix connectors at this stage.



Second fix:

With ceiling mounting, the CDD5 will probably be used in landscape mode: fit the cabinet section of the wall bracket using the four “upper” screws as shown below:



Note that is vital that the driver is orientated to suit the deployment used. “Out of the box” the driver is in the correct position for “portrait” use and must be rotated through 90° for “landscape” use. Please see the chapter driver rotation for details.

It is also possible to ceiling mount the CDD5 in portrait mode by using the “lower” four screws to fix the cabinet section of the wall bracket, but in this case the cabinet should be mounted upside down, and the driver and grille will both need to be rotated 180°. The sloping bottom of the cabinet allows a close fit to the ceiling which may be more aesthetically pleasing in some installations.



Offer the cabinet up to the ceiling bracket assembly and attach it using the 5 mm securing bolt. This can be loosely fitted to allow final adjustment before being fully tightened once the desired coverage has been established.



CDD6 and CDD8

Optional mounting CDDCB6/8(B or W*) is a bracket onto which allows a CDD6 or CDD8 cabinet to be ceiling mounted. It consists of two sections: a 90° arm and a removable four-point cabinet bracket section which is fixed directly to the cabinet rear:



* B and W suffixes denote colour

First fix:

First disassemble the bracket, unscrewing the cabinet section from the ceiling arm using an M6 hex key to undo the securing bolt.



Fix the ceiling bracket assembly to the ceiling. There are three 6.5 mm holes and a central 13 mm hole in the bracket for this purpose. It is essential that appropriate fixings are used to allow safe and secure attachment to the ceiling material, particularly as these may be fitted overhead public areas. The fixings to be used will depend on the ceiling construction. Use the larger central 13 mm hole as the principal fixing initially: this lets you adjust the bracket to obtain the correct horizontal coverage by pivoting it on the single mounting. When the position is correct, tighten it, and add further fixings to the other three holes to ensure a safe and secure mounting.

It is also good practice to terminate the speaker cables with the Phoenix connectors at this stage.

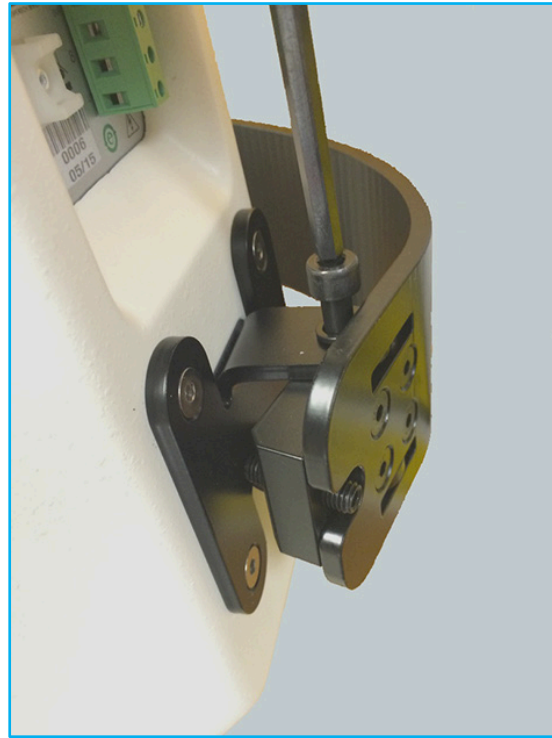
**Second fix:**

With ceiling mounting, the cabinet will probably be used in landscape mode. Fit the cabinet section of the wall bracket (previously removed from the arm). The bracket is attached orientated as shown by removing four screws with an M4 hex key and attaching the bracket with the same screws. In the case of the CDD6, there are only four fixing points; the CDD8 has six: use the four “upper” ones. The photo below illustrates the fixings on a CDD6:

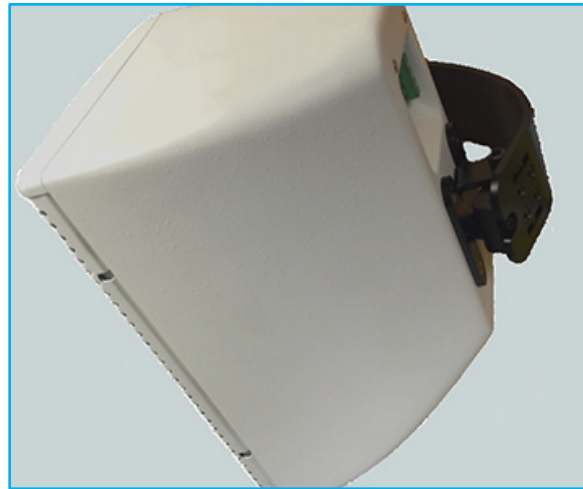


Note that is vital that the driver is orientated to suit the deployment used. “Out of the box” the driver is in the correct position for “portrait” use and must be rotated through 90° for “landscape” use. Please see the driver rotation chapter for details.

Offer the cabinet up the ceiling bracket arm and mate the cabinet bracket section with the ceiling bracket arm by threading the M6 bolt with spring washer through the cabinet bracket as shown below. Do not fully tighten the bolt at this stage, leave a little play so the vertical dispersion can be adjusted.



The vertical dispersion can be adjusted using the grub screw accessed from the rear of the bracket:



It is also possible to ceiling mount the CDD6 or CDD8 in portrait mode, but in this case the cabinet should be mounted upside down, and the driver and grille will both need to be rotated 180°. The sloping bottom of the cabinet allows a close fit to the ceiling which may be more aesthetically pleasing in some installations.



The cabinet section of the wall bracket should be fitted at 90° relative to the fitment used for landscape orientation. In the case of the CDD8, which has six rear fixing points, use the four “lower” ones; the CDD6 only has four fixing points.

MOUNTING WITH A YOKE ASSEMBLY

Yoke assemblies CDDYA10, CDDYA12 and CDDYA15 may be fitted to Models CDD10, CDD12 and CDD15 respectively, if a yoke mounting arrangement is preferred. Note that due to the weight of the enclosure, yoke mounting is the only method available for Model CDD15.

The yoke design and fitting method is the same for all three models; the yoke assemblies differ only in size.

The assembly comes in three parts – the yoke itself, and two side bars which are bolted to the enclosure ends. If the yoke assembly is being fitted to a wall or ceiling as a permanent installation, first and second fix procedures may be adopted as described below. If the cabinet is to be hung in horizontal orientation from a pole with a scaf clamp, the yoke assembly can be fitted to the cabinet in a single operation.

Installation:

Yokes may either be permanently fixed to a wall or ceiling or fitted with a clamp for suspension from a scaffold pole or truss. Yokes are designed for use in either landscape or portrait orientation.

For permanent installations, a first fix/second fix method may be adopted; here the yoke loop and side arms are fixed in position and the cabinet mated to the loop at a later date.

When suspending the cabinet from a scaffold pole, the whole yoke assembly should be fitted to the cabinet and the cabinet hung as a single exercise. In this case, the “First fix” section of the Installation instructions below may be ignored.

The components of the yoke assembly are shown below:



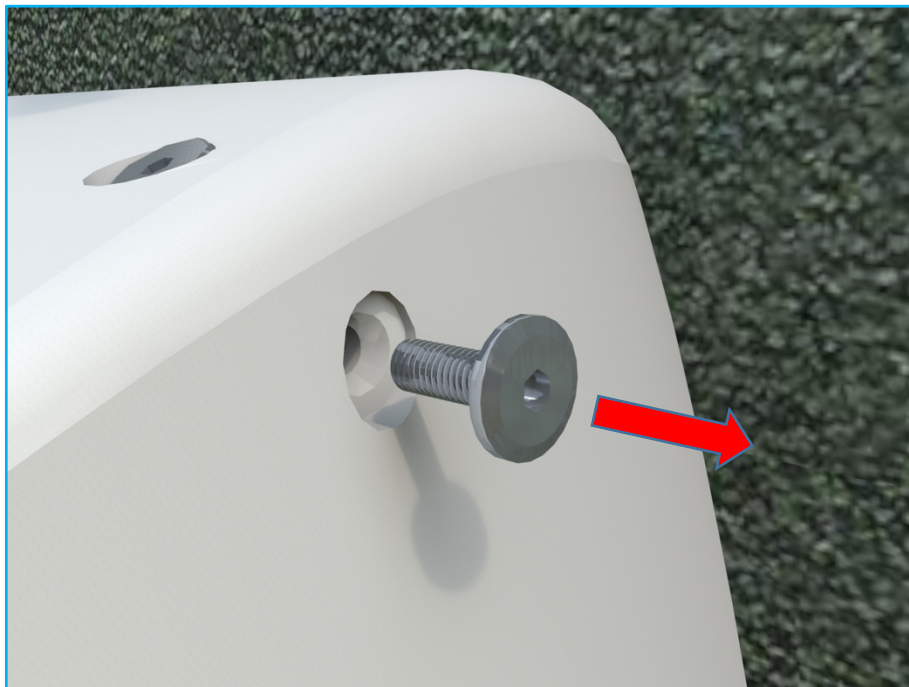
Yokes may be permanently attached to a wall or ceiling. The yoke allows vertical adjustment and if mounted using the single attachment point in the centre of the yoke horizontal adjustment could also be possible.

The first stage is to fit the side arms to the yoke using the M12 Nyloc nuts supplied. A washer should go between the side arm and yoke and between the yoke and nut. There are three fixing holes into which the side arms may be fitted, which of these you use will depend on the angle of down-tilt required, it may be prudent to loosely fit the assembly together at ground level to determine which will be the best pair of holes to use. Tighten the side arms sufficiently to just allow a little movement for final positioning. The Yoke assembly should be fitted to the wall or ceiling in its intended position. Four 8.5 mm holes are provided for this purpose. It is essential that appropriate fixings are used to allow safe and secure attachment to the ceiling material, particularly as these may be fitted overhead public areas. The central 13mm hole can also be used to mount the yoke which will provide horizontal adjustment as well as vertical; however, a sufficiently robust fixing method must be used if attaching from this single point and we would strongly recommend the use of a secondary safety fitting (see note in “Second fix” below). If not used for fixing, the central hole may be used for cable access. It is also good practice to terminate the speaker cables with the Phoenix connectors at this stage.



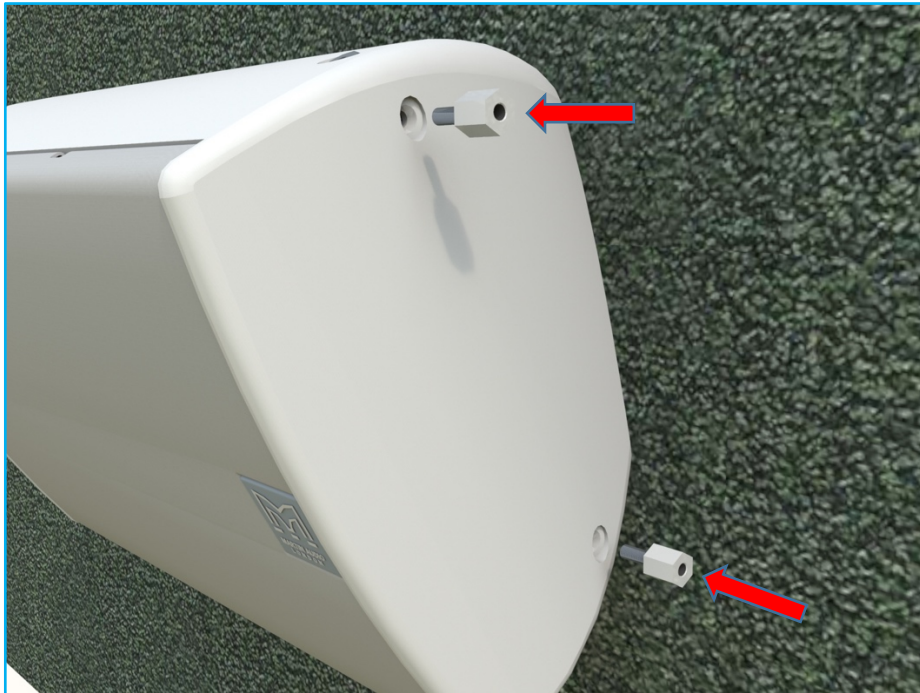
Note that is vital that the driver is orientated to suit the deployment used. “Out of the box” the driver is in the correct position for “portrait” use and must be rotated through 90° for “landscape” use. Please see the driver rotation chapter for details.

First remove two of the M8 screws in the top and bottom of the cabinet, four in total. Note that there are three screws on both top and bottom; the screw nearest the back of the cabinet is not used, so should be left in place.



The screws removed must be retained as they are used to attach the cabinet to the yoke.

Replace the screws with the hex spacers supplied with the yoke assembly. These are all the same length so can be used in any position. Ensure they are tightened securely.

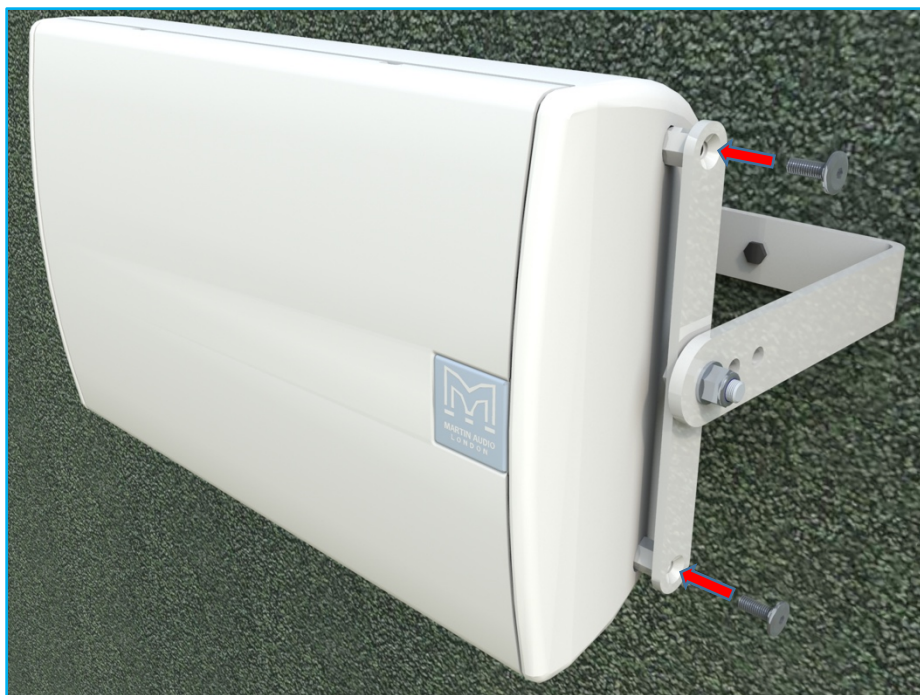


The cabinet assembly can now be attached to the yoke. If the yoke has already been fitted to a wall or ceiling as part of a permanent installation, this step should be undertaken by two people, for safety reasons: one to hold the cabinet in place and the other to fit the securing bolts at either end. If the cabinet is to be suspended from a scaffolding pole with a clamp, it may be possible to attach the yoke loop to the cabinet at ground level.

IMPORTANT INFORMATION

All standard safety protocols must be observed when working at height if the fixing point cannot be reached from the ground.

Note that each end of the yoke arms has three 10.5 mm holes, 17.5 mm apart. Any pair of holes may be used; the choice will be determined only by the degree of vertical adjustment required and how close to the yoke frame the cabinet is preferred to be.



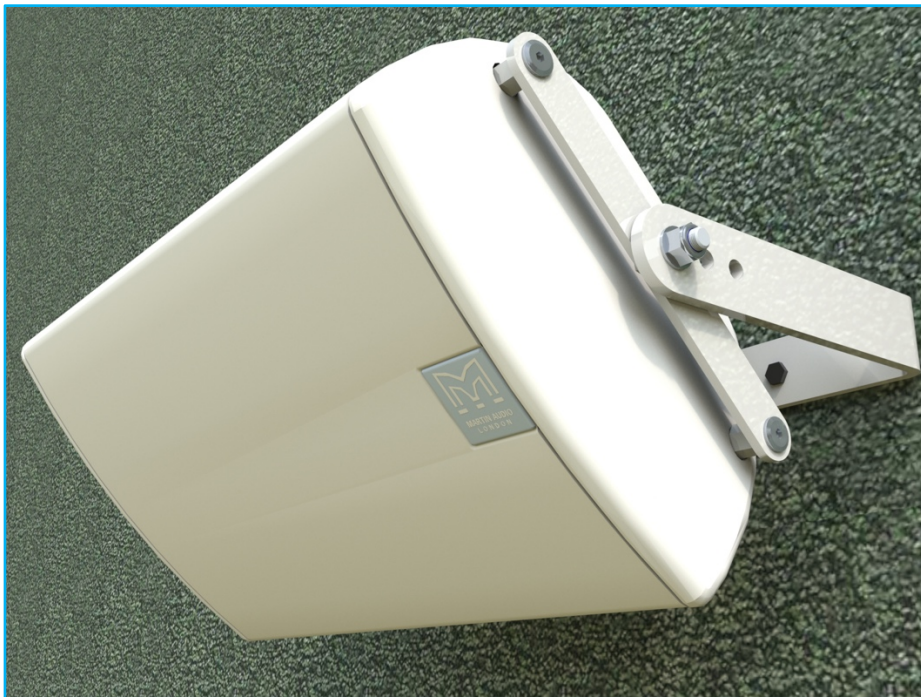
Use the four screws removed from the cabinet to secure the cabinet going through the side arms into the hex spacers. Tighten securely using a 5mm Allen Key. Connect the Phoenix connector to the input panel.

If the cabinet is to be suspended from a scaffold pole or truss, fit the scaf clamp (or other single-point mounting) to the yoke using the 13 mm diameter centre hole in the yoke main frame. Raise the cabinet to its mounting location and suspend it from the pole or grid; this is likely to require two people. Tighten the clamp bolt. Connect up and adjust pan and tilt angles as required.

IMPORTANT INFORMATION

All standard safety protocols must be observed when working at height.

Adjust the tilt angle of the cabinet for optimum coverage and fully tighten the M12 nut each side of the yoke to prevent any accidental movement



Always fit a secondary safety retaining device. This should be a chain or steel rope attached directly to the cabinet, and NOT to the yoke. It can be attached to the cabinet by fitting an M8 eyebolt into one of the inserts provided for flying purposes. The other end should be attached to a securing point which is a permanent fixture in the building structure. The scaffold pole or truss itself may be suitable if it is a permanent fixture and not part of temporary rigging. If in any doubt, local Safety Regulations should be consulted and adhered to.

ALTERNATIVE POLE MOUNTING

Using a yoke assembly, a cabinet may be floor-mounted on a pole stand if wished. This is achieved by fitting a pole mount adaptor to the yoke instead of a scaf clamp. Before installing a CDD Series enclosure in this way, ensure that the floor stand used is rated for the weight of the cabinet.

FLYING CDD SERIES CABINETS

A further installation option for Models CDD10, CDD12 and CDD15 is to employ standard flying techniques.

The CDD10, CDD12 and CDD15 can be flown by fitting M8 shouldered eye bolts to the cabinets and using steel rope or chains to suspend them at the desired height from suitable fixings in the roof. Martin Audio can supply suitably rated eye bolts for this purpose: Part No. HTKCT05, which are suitable for all three models:

IMPORTANT

Note that eye bolts for flying systems must be cast or machined, shouldered fittings rated for the purpose. Forged steel eye bolts of the type typically available from DIY suppliers are NOT suitable and should not be used under any circumstances.

The M8 inserts in CDD cabinets are recessed, and the shoulder on Martin Audio eye bolts fits into the recess. If you use an eye bolt with a shoulder wider than the recess you will need to space the bolt so it tightens down on the thread rather than the outer surface of the cabinet.

CDD cabinets can be flown in vertical (“portrait”) or horizontal (“landscape”) orientation.

Note that is vital that the driver is orientated to suit the deployment used. “Out of the box” the driver is in the correct position for “portrait” use and must be rotated through 90° for “landscape” use. Please see the driver rotation chapter for details.

There are a total of ten M8 inserts in each cabinet, three on the top, two on the bottom, two on each side and one on the back (terms with reference to the cabinet in portrait orientation). Note that the inserts on the top, bottom and sides are recessed into the cabinet; spacers or washers must be used in these positions so that the eye bolts can be tightened sufficiently.

The most common method for suspending cabinets in portrait mode is to use the front two positions on the cabinet top as the primary suspension points with a third at the rear to provide any required downward tilt. The third position may be the rear insert on the cabinet top of the cabinet or the one on the back of the cabinet, if a steeper tilt is required.



In horizontal mode, the third flying point (to adjust tilt) can be obtained by removing one of the six screws on the rear of the cabinet:



Always ensure that the rigging method and components used are suitable for both the weight of the cabinets and the suspension points at height.

CSX SERIES SUBWOOFERS - INSTALLATION

CSX Subwoofers, having omnidirectional dispersion characteristics, will normally be floor mounted in a suitable location in the room. As the bass frequencies involved are essentially non-directional, the location will be dictated simply by convenience and practicality. It is often only necessary to use a single subwoofer cabinet with a stereo system, as the active crossover will generate the mono LF feed required. See “System connections” for more details regarding system connections.

Any model of CSX subwoofer may be used in conjunction with any model from the CDD Series, provided the appropriate parameters are set up in the loudspeaker management system. However, practical combinations are likely to be as shown below:

	CDD5	CDD6	CDD8	CDD10	CDD12	CDD15
CSX112-F	•	•	•	•		
CSX212-F	•	•	•	•	•	
CSX118-F				•	•	•
CSX218-F					•	•

FLYING CSX SUB-WOOFERS

CSX Series subwoofers may also be flown; ‘F’ versions are available for this purpose, pre-fitted with threaded inserts to accept eye bolts. This option must be specified at the time of ordering, as the inserts cannot be retro-fitted.

Shouldered eye bolts are used in the inserts in the same manner as for CDD Series cabinets. Approved eye bolts are available from Martin Audio for the subwoofers: Part No. HTKCT06 – M10 eye bolt, suitable for all CSX models.



IMPORTANT

Note that eye bolts for flying systems must be cast or machined, shouldered fittings rated for the purpose. Forged steel eye bolts of the type typically available from DIY suppliers are NOT suitable and should not be used under any circumstances.

The M10 inserts in CSX cabinets are recessed, and the shoulder on Martin Audio eye bolts fits into the recess. If you use an eye bolt with a shoulder wider than the recess you will need to space the bolt so it tightens down on the thread rather than the outer surface of the cabinet.

Fit an eye bolt into each of the threaded inserts in the cabinet top (there are four, one in each corner).

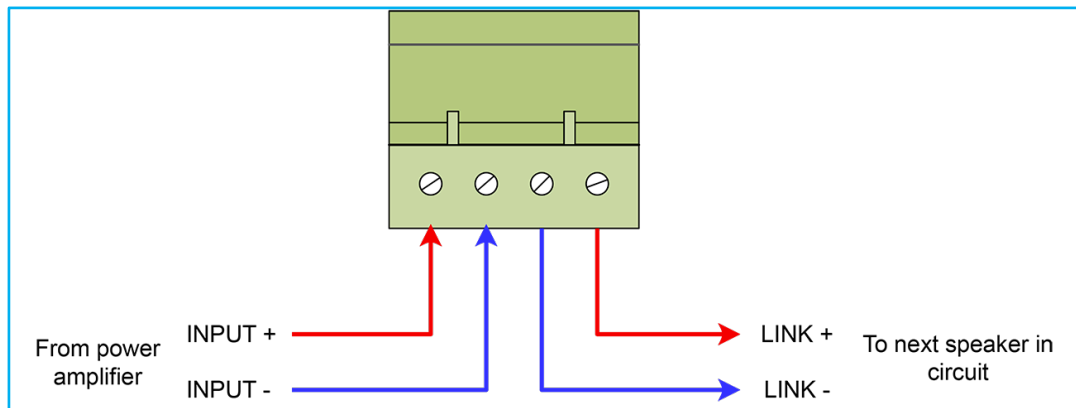
Note that CSX Series subwoofer cabinets are not designed to mate mechanically with CDD Series cabinets and have no provision for doing so. If flying both CDD Series cabinets and CSX Series subwoofers, they must be rigged independently of each other.

Use standard rigging techniques to raise the subwoofers to the required height. Always ensure that the rigging method and components used are suitable for both the weight of the cabinets and the suspension points at height.

SYSTEM CONNECTIONS

All CDD Series and CSX Series speakers are fitted with low-profile four-pin push-lock connectors, rated at 13 A (CDD5, CDD6 and CDD8) or 20 A (CDD10, CDD12, CDD15 and all CSX models). These are mounted on the recessed rear panel, allowing for a very neat wiring job with no protruding connectors.

To permit simple interconnection between multiple speaker cabinets on the same circuit, two of the pins are designated as ‘Link’ connections; these can be used to “daisy-chain” the amplifier output to the next speaker:



A mating connector is supplied with each cabinet. In a fixed installation, this can be fitted to the speaker cables during first fix.

WR (WEATHERISED) MODELS ONLY

On Models CDD5TX-WR and CDD6TX-WR the gland is positioned for vertical cable entry; there is a second hole fitted with a “knock-out” to the right to allow a second gland (not supplied) to be fitted if cabinets are to be daisy-chained. On Models CDD8-WR and above, a single cable gland is positioned for rearwards cable entry.



The cover is retained in place by two (CDD8-WR and above) or three (CDD5/6TX-WR) hex-head screws: remove these to remove the cover, taking care not to damage the gasket which seals the cover against the rear panel. Loosen the gland’s cable clamp nut and pass the cable through the gland assembly and then connect to the INPUT terminals as described above. In the case of the CDD5TX-WR or CDD6TX-WR, if daisy-chaining to another speaker, remove the knock-out, fit a second gland and repeat the process, connecting the second cable to the LINK terminals.

NOTE: To maintain the enclosure’s IP rating, the second gland must be of the same type as the pre-fitted one and of the correct size for the hole.

IMPEDANCES

All CDD Series loudspeakers have an impedance of 8 ohms. (Model CDD5 only - see section below regarding 70/100 V-line operation)

Subwoofer Models CSX112 and CSX118 have an impedance of 8 ohms

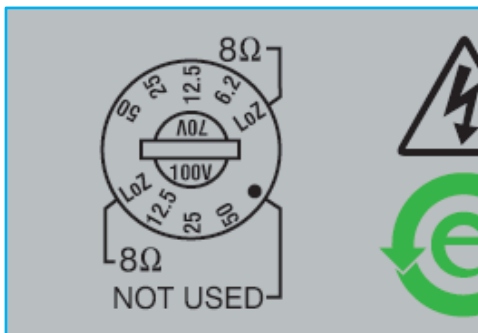
Subwoofer Models CSX212 and CSX218 have an impedance of 4 ohms.

70/100 V-LINE OPERATION (MODEL CDD5TX and CDD6TX ONLY)

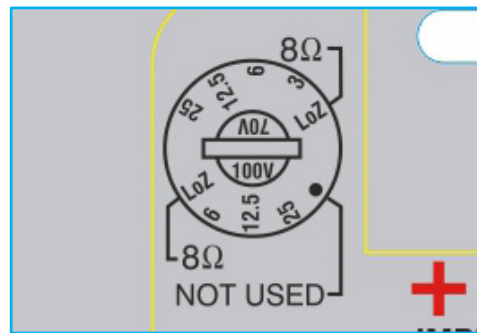
Models CDD5 and CDD6 are also available as variant CDD5TX and CDD6TX with a 70/100 V-line transformer fitted internally. In accordance with normal line system practice, a rotary switch is provided to select the required power rating. An additional switch position selects low-impedance operation (8 ohms).

The rotary switch is located on the front of the cabinet, so the grille needs to be removed to access it. This has the advantage of allowing the power setting to be adjusted once the speaker has been installed and correctly positioned.

CDD5TX-WR.



CDD6TX-WR



SW Position	70V Line	100V Line	70V line	100V line
1	Low impedance operation (8 ohms)		Low impedance operation (8 ohms)	
2	3 W	6 W	6.5 W	12.5W
3	6 W	12.5 W	12.5 W	25 W
4	12.5 W	25 W	25 W	50 W
5	25 W	n/a	50 W	n/a

High levels of low-frequency signals can cause transformer core saturation, which can cause distortion and sounds unpleasant. If driving 70/100 V-line loudspeakers with bass-heavy programme material at high levels, we strongly recommend that a high-pass filter is included in the signal path. This can be easily implemented by the DX0.5 loudspeaker management system; many industrial power amplifiers designed for 70/100 V-line operation will have selectable fixed filters for this purpose. If such filters are not available in the amplifiers, they can be implemented in the Loudspeaker Management System controller.

Cable specifications

Use good-quality, fine-stranded two-core speaker cable. Depending on the type of installation and the system’s application, local regulations may dictate the type of cable jacket to be installed

(e.g., low-smoke hazard).

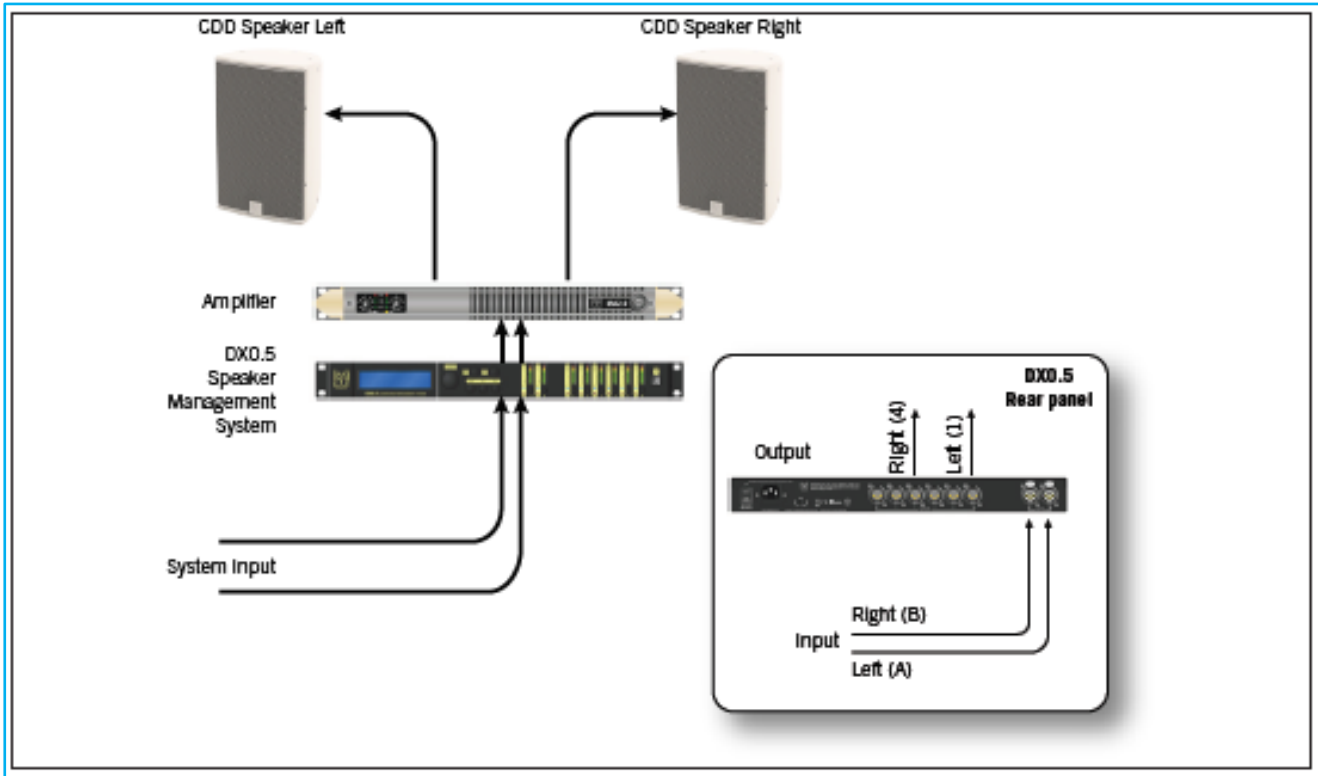
The minimum gauge of cable to be used is determined by the length of cable run:

- Up to 30 m run – use minimum 2.5 mm² cable
- Over 30 m run – use minimum 4.0 mm² cable

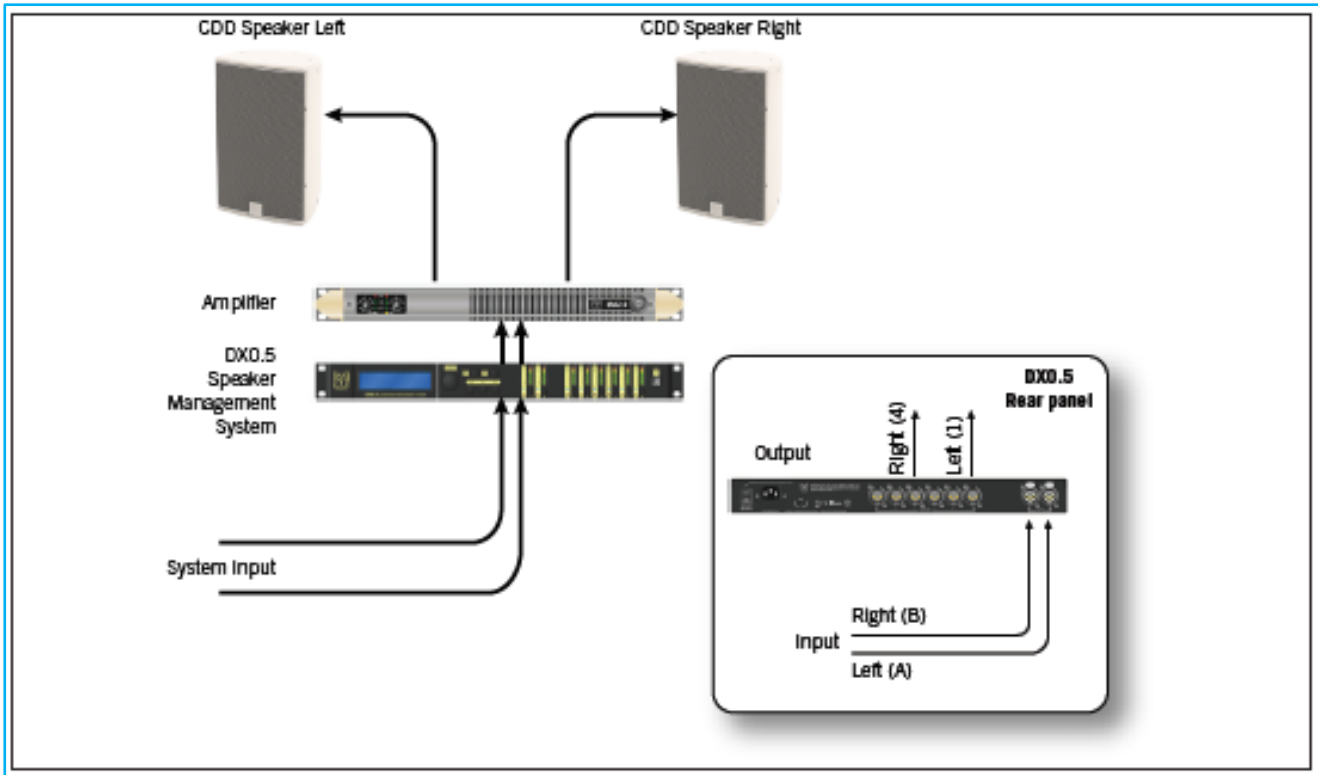
SYSTEM EXAMPLES

The following diagrams show examples of possible systems. All assume the use of the DX0.5 loudspeaker management system. This is recommended for all systems, even when no subwoofers are in use, as when set correctly to suit the amplifiers being used, the limiter functions provide excellent loudspeaker protection against overloads and possible amplifier faults.

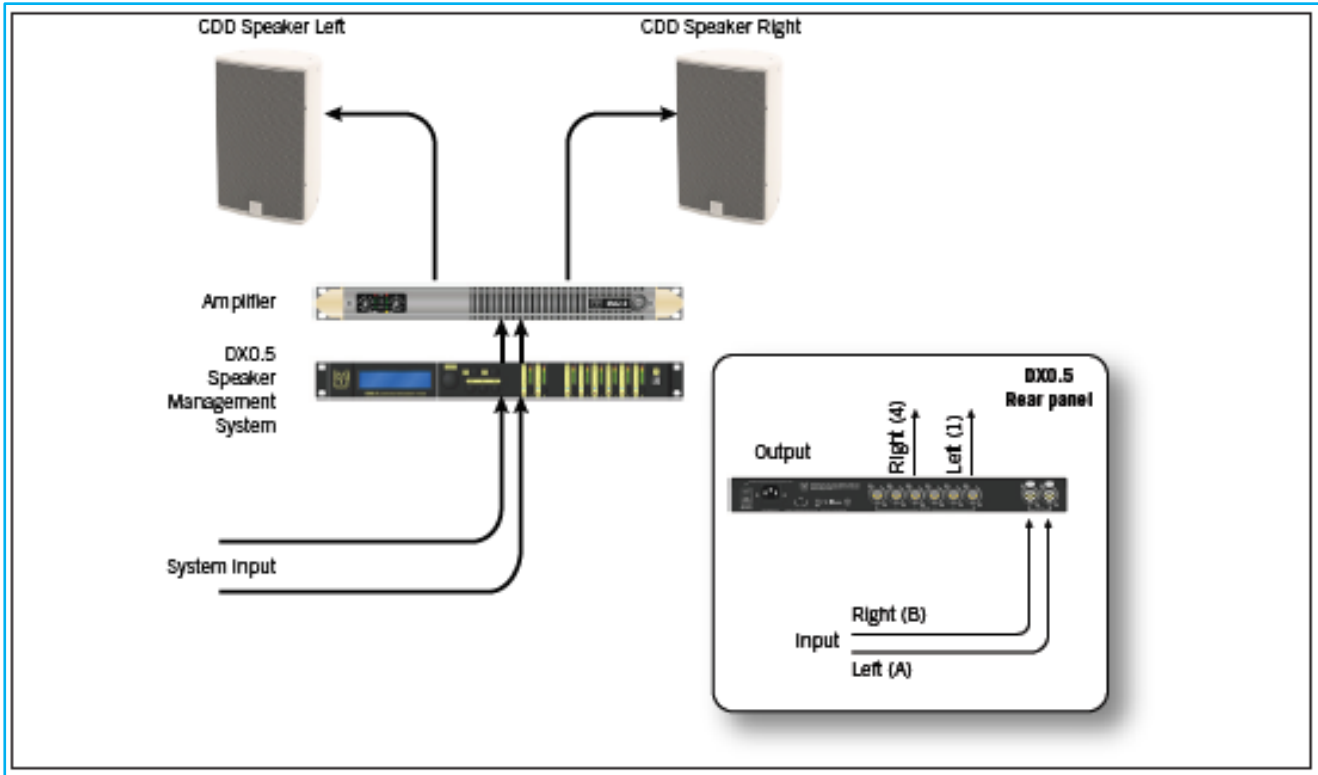
1 x Stereo



2 x Stereo + 1 Sub



3 x Stereo + 2 Sub





MARTIN AUDIO DX0.5 LOUDSPEAKER MANAGEMENT SYSTEM

The DX0.5 is a professional two-input, six-output DSP-based loudspeaker management system in a 1U rack mounting unit, which has been developed specifically for use with the CDD range.

The DX0.5 is ideal for use as the stereo crossover in systems incorporating CSX subwoofers. As well as its crossover functions, it includes five parametric/shelving filters on each input and seven filters on each output. Level control, muting and delay are available on all inputs and outputs, plus dedicated HF/LF filters and protective limiting are also provided on all outputs.

The DX0.5 is supplied with a series of internal preset memories for a range of CDD systems. Additional presets for other Martin Audio products can be downloaded from the website. There are 24 memory locations in the unit suitable for storing presets for each CDD model. Martin Audio strongly recommend using the DX0.5, but settings for use with other controllers are tabulated on the following page, "Using alternative controllers"- user entry of parameters is required.

The full DX0.5 User Guide is available on-line at www.martin-audio.com, and includes numerous examples of system wiring.

CDD PRESET LIST

Preset No	Name	Output					
		1	2	3	4	5	6
1	CDD5	CDD5 L	CDD5 L	CDD5 L	CDD5 R	CDD5 R	CDD5 R
2	CDD6	CDD6 L	CDD6 L	CDD6 L	CDD6 R	CDD6 R	CDD6 R
3	CDD8	CDD8 L	CDD8 L	CDD8 L	CDD8 R	CDD8 R	CDD8 R
4	CDD10	CDD10 L	CDD10 L	CDD10 L	CDD10 R	CDD10 R	CDD10 R
5	CDD12	CDD12 L	CDD12 L	CDD12 L	CDD12 R	CDD12 R	CDD12 R
6	CDD15	CDD15 L	CDD15 L	CDD15 L	CDD15 R	CDD15 R	CDD15 R
7	CSX112-F, 212-F, CDD5	CSX112 L	CSX212 L	CDD5 L	CSX112 R	CSX212 R	CDD5 R
8	CSX112-F, 212-F, CDD6	CSX112 L	CSX212 L	CDD6 L	CSX112 R	CSX212 R	CDD6 R
9	CSX112-F, 212-F, CDD8	CSX112 L	CSX212 L	CDD8 L	CSX112 R	CSX212 R	CDD8 R
10	CSX112-F, 212-F, CDD10	CSX112 L	CSX212 L	CDD10 L	CSX112 R	CSX212 R	CDD10 R
11	CSX118-F, 218-F, CDD10	CSX118 L	CSX218 L	CDD10 L	CSX118 R	CSX218 R	CDD10 R
12	CSX118-F, 218-F, CDD12	CSX118 L	CSX218 L	CDD12 L	CSX118 R	CSX218 R	CDD12 R
13	CSX118-F, 218-F, CDD15	CSX118 L	CSX218 L	CDD15 L	CSX118 R	CSX218 R	CDD15 R

USING ALTERNATIVE CONTROLLERS

Alternative high-quality loudspeaker management systems may be used. The table below lists the parameters for each CDD Series speaker that need to be entered into the controller for safe and optimised operation. Please note that the data provided is based on the algorithms used by Martin Audio DX Series Loudspeaker Management Systems; third-party systems are likely to use different algorithms which may result in both sub-optimal performance and reduce loudspeaker protection.

	Gain ¹	High Pass Filter		Low Pass Filter		EQ			Limiter		
		Freq	Slope	Freq	Slope	Freq	Q	Gain	Threshold ²	Attack	Release
CDD5	0dB	60Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	101Hz	1.5	4dB	-2dBu	16ms	0.5s
CDD5 & CSX112 / 212	7.5dB	110Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	101Hz	1.5	4dB	-2dBu	8ms	0.3s
CDD6	0dB	50Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	75Hz	1.2	6dB	-1dBu	16ms	0.5s
CDD6 & CSX112 / 212	6dB	100Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	75Hz	1.2	6dB	-1dBu	8ms	0.3s
CDD8	0dB	40Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	72Hz	1.2	6dB	1dBu	16ms	0.5s
CDD8 & CSX112 / 212	5dB	100Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	72Hz	1.2	6dB	1dBu	8ms	0.3s
CDD10	0dB	40Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	70.2Hz	1.3	6dB	3dBu	16ms	0.5s
CDD10 & CSX112 / 212	3dB	80Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	70.2Hz	1.3	6dB	3dBu	16ms	0.5s
CDD10 & CSX118 / 218	2dB	80Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	70.2Hz	1.3	6dB	3dBu	16ms	0.5s
CDD12	0dB	20Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	70.2Hz	0.9	6dB	4dBu	20ms	0.6s
CDD12 & CSX118 / 218	0dB	80Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	70.2Hz	0.9	6dB	4dBu	16ms	0.5s
CDD15	0dB	20Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	66Hz	0.9	6.5dB	5dBu	20ms	0.6s
CDD15 & CSX118 / 218	-2dB	80Hz	24dB/Oct LR	>32kHz	24dB/Oct LR	66Hz	0.9	6.5dB	5dBu	16ms	0.5s
CSX112 & CDD5	6dB	20Hz	24dB/Oct LR	120Hz	24dB/Oct LR	55Hz	1.0	6dB	5dBu	40ms	1.3s
CSX112 & CDD6, CDD8	6dB	20Hz	24dB/Oct LR	110Hz	24dB/Oct LR	55Hz	1.0	6dB	5dBu	40ms	1.3s
CSX112 & CDD10	6dB	20Hz	24dB/Oct LR	90Hz	24dB/Oct LR	55Hz	1.0	6dB	5dBu	40ms	1.3s
CSX212 & CDD5	0dB	20Hz	24dB/Oct LR	120Hz	24dB/Oct LR	55Hz	1.0	6dB	5dBu	40ms	1.3s
CSX212 & CDD6, CDD8	0dB	20Hz	24dB/Oct LR	110Hz	24dB/Oct LR	55Hz	1.0	6dB	5dBu	40ms	1.3s
CSX212 & CDD10	0dB	20Hz	24dB/Oct LR	90Hz	24dB/Oct LR	55Hz	1.0	6dB	5dBu	40ms	1.3s
CSX118	6dB	20Hz	24dB/Oct LR	90Hz	24dB/Oct LR				8dBu	40ms	1.3s
CSX218	0dB	20Hz	24dB/Oct LR	90Hz	24dB/Oct LR	40Hz	2.0	4dB	8dBu	40ms	1.3s

1 For all models: phase=in; delay=0 ms

2 The figures in this column are based on an amplifier gain of 32 dB. For amplifiers with different gains, please refer to the loudspeaker data spreadsheet on our website, which will calculate the correct threshold setting for any given gain.



AMPLIFIERS – RECOMMENDATIONS

Martin Audio MA Series two channel and VIA Series two and four channel power amplifiers are recommended for use with CDD Series loudspeakers and CSX Series subwoofers. These amplifiers work well down to 2 ohms, making it possible to power up to four cabinets in parallel from each channel.

Other manufacturers' power amplifiers may be used provided they are capable of delivering the necessary power into the combined impedance of the cabinets in use. Note that many amplifiers suffer sonic degradation when driving low load impedances or, worse still, shut down. Always check your intended power amplifier's specifications and conduct listening tests before committing to a very low impedance system design.

The table below specifies the recommended minimum amplifier rating for each model of CDD Series and CSX Series cabinet. The "Recommended models" column lists the Martin Audio MA & VIA Series amplifier models suitable for each speaker model.

Model	Rating AES	Rating Peak	Impedance	Minimum Amplifier	Recommended Models MA	Recommended Models VIA / IKON
CDD5	100W	400W	8 ohms	800W into 4 ohms	MA2.8Q, MA2.0	VIA2502, VIA2004
CDD6	150W	600W	8 ohms	1,200W into 4 ohms	MA2.8Q, MA2.0	VIA2502, VIA2004
CDD8	200W	800W	8 ohms	1,600W into 4 ohms	MA2.8Q, MA2.0	VIA2502, VIA2004
CDD10	250W	1,000W	8 ohms	2,000W into 4 ohms	MA2.0	VIA2502, VIA5004
CDD12	300W	1,200W	8 ohms	2,400W into 4 ohms	MA2.0, MA3.0	VIA5002
CDD15	400W	1,600W	8 ohms	2,400W into 4 ohms	MA3.0, MA5.2K	VIA5002
CSX112-F	400W	1,600W	8 ohms	3,200W into 4 ohms	MA3.0, MA5.2K	VIA5002
CSX212-F	800W	3,200W	4 ohms	3,200W into 4 ohms	MA5.2K	iK42
CSX118-F	1,000W	4,000W	8 ohms	8,000W into 4 ohms	MA5.2K	iK42
CSX218-F	2,000W	8,000W	4 ohms	8,000W into 4 ohms	MA9.6K, MA12K	iK42

SPECIFICATIONS

CDD5, CDD6, CDD8

	CDD5	CDD6	CDD8
TYPE	Ultra-compact, Coaxial Differential Dispersion passive two-way system	Ultra-compact, Coaxial Differential Dispersion passive two-way system	Ultra-compact, Coaxial Differential Dispersion passive two-way system
FREQUENCY RESPONSE ¹	100Hz – 20kHz ± 3dB, -10dB @ 70Hz	80Hz – 20kHz ± 3dB, -10dB @ 70Hz	70Hz – 20kHz ± 3dB, -10dB @ 70Hz
DRIVER	LF: 5.25" (130 mm)/1.25" (32 mm) voice coil, long excursion, ferrite motor system HF: 0.75" (19 mm) voice coil, fabric dome with neodymium motor system	LF: 6.5" (165 mm)/1.5" (38 mm) voice coil, long excursion, ferrite motor system HF: 1" (25 mm) voice coil, fabric dome with neodymium motor system	LF: 8" (200 mm)/2" (50 mm) voice coil, long excursion, shared ferrite motor system with HF HF: 1" (25 mm) exit/1.4" (38 mm) voice coil, polyimide dome compression driver
RATED POWER ²	100 W AES, 400 W peak	150 W AES, 600 W peak	200 W AES, 800 W peak
RECOMMENDED AMPLIFIER	MA2.0 VIA2502, VIA5004	MA2.0, MA3.0 VIA2502, VIA2004	MA2.8Q, MA2.0 VIA2502, VIA2004
SENSITIVITY ³	90 dB	91 dB	94 dB
MAXIMUM SPL ⁴	110 dB continuous, 116 dB peak	113 dB continuous, 119 dB peak	117 dB continuous, 123 dB peak
NOMINAL IMPEDANCE	8 ohms	8 ohms	8 ohms
DISPERSION (-6 dB) ⁵	120°-90° horizontal, 80° vertical (user-rotatable)	110°-80° horizontal, 80° vertical (user-rotatable)	110°-80° horizontal, 60° vertical (user-rotatable)
CROSSOVER	2.5 kHz passive	2.5 kHz passive	2.3 kHz passive
ENCLOSURE	3 litre, ABS	9 litre, composite material	14 litre, composite material
FINISH	Black or white	Black or white textured paint	Black or white textured paint
PROTECTIVE GRILLE	Standard models only: black or white perforated steel with scrim cloth backing "WR" models only: black or white perforated, zinc-plated steel with scrim cloth backing, Declon® synthetic fabric layer and inner, zinc-plated, hydrophobic steel mesh layer	Standard models only: black or white perforated steel with scrim cloth backing "WR" models only: black or white perforated, zinc-plated steel with scrim cloth backing, Declon® synthetic fabric layer and inner, zinc-plated, hydrophobic steel mesh layer	Standard models only: black or white perforated steel with scrim cloth backing "WR" models only: black or white perforated, zinc-plated steel with scrim cloth backing, Declon® synthetic fabric layer and inner, zinc-plated, hydrophobic steel mesh layer
CONNECTORS	Low-profile 13 A push-lock WR models only: weatherproof cover with gasket seal and cable gland	Low-profile 13 A push-lock WR models only: weatherproof cover with gasket seal and cable gland	Low-profile 13 A push-lock WR models only: weatherproof cover with gasket seal and cable gland
PIN CONNECTIONS	Left to right: Input+, Input -, Link -, Link +	Left to right: Input+, Input -, Link -, Link +	Left to right: Input+, Input -, Link -, Link +
FITTINGS	6 x M5 inserts for wall/ceiling brackets	4 x M6 inserts for wall/ceiling brackets	6 x M6 inserts for wall/ceiling brackets
ENVIRONMENTAL	IP54 (Model CDD5TX-WR only)	IP54 (Model CDD6TX-WR only)	IP54 (Model CDD8-WR only)
DIMENSIONS	(W) 160 mm x (H) 230 mm x (D) 149 mm (W) 6.3 in x (H) 9.1 in x (D) 5.9 in	(W) 210 mm x (H) 325 mm x (D) 210 mm (W) 8.3 in x (H) 12.8 in x (D) 8.3 in	(W) 256 mm x (H) 410 mm x (D) 253 mm (W) 10.1 in x (H) 16.1 in x (D) 10 in
WEIGHT	2.7 kg (6 lb)	5 kg (11 lb)	9.5 kg (21 lb)
ACCESSORIES	CDDCB5B ceiling bracket black CDDCB5W ceiling bracket white	WB6/8B wall bracket black WB6/8W wall bracket white CDDCB6/8B ceiling bracket black CDDCB6/8W ceiling bracket white	WB6/8B wall bracket black WB6/8W wall bracket white CDDCB6/8B ceiling bracket black CDDCB6/8W ceiling bracket white

Notes

- (1) Measured on-axis in open (4pi) space at 2 metres, then referred to 1 metre.
- (2) AES Standard ANSI S4.26-1984.
- (3) Measured in open (4pi) space at 2 metres with 2.83V input, using band limited pink noise, then referred to 1 metre.
- (4) Calculated at 1 m.
- (5) Measured in open (4pi) space at 2 metres.

CDD10, CDD12, CDD15

	CDD10	CDD12	CDD15
TYPE	Compact, Coaxial Differential Dispersion passive two-way system	Compact, high-output, Coaxial Differential Dispersion passive two-way system	High-output, Coaxial Differential Dispersion passive two-way system
FREQUENCY RESPONSE ¹	65Hz – 20kHz ± 3dB, -10dB @ 55Hz	62Hz – 20kHz ± 3dB, -10dB @ 50Hz	55Hz – 20kHz ± 3dB, -10dB @ 45Hz
DRIVER	LF: 10" (250 mm)/2.5" (63.5 mm) voice coil, long excursion, shared ferrite motor system with HF HF: 1" (25 mm) exit/1.4" (38 mm) voice coil, polyimide dome compression driver	LF: 12" (300 mm)/2.5" (63.5 mm) voice coil, long excursion, shared ferrite motor system with HF HF: 1" (25 mm) exit/1.7" (44 mm) voice coil, polyimide dome compression driver	LF: 15" (380 mm)/3" (75 mm) voice coil, long excursion, shared ferrite motor system with HF HF: 1.4" (32 mm) exit/3" (75 mm) voice coil, titanium dome compression driver
RATED POWER ²	250 W AES, 1000 W peak	300 W AES, 1200 W peak	400 W AES, 1600 W peak
RECOMMENDED AMPLIFIER	MA2.0 VIA2502, VIA2004	MA2.0, MA3.0 VIA5002	MA3.0, MA5.2K VIA5002
SENSITIVITY ³	96 dB	97 dB	100 dB
MAXIMUM SPL ⁴	120 dB continuous, 126 dB peak	122 dB continuous, 128 dB peak	126 dB continuous, 132 dB peak
NOMINAL IMPEDANCE	8 ohms	8 ohms	8 ohms
DISPERSION (-6 dB) ⁵	110°-70° horizontal, 60° vertical (user-rotatable)	110°-60° horizontal, 60° vertical (user-rotatable)	110°-60° horizontal, 60° vertical (user-rotatable)
CROSSOVER	2 kHz passive	1.9 kHz passive	1.6 kHz passive
ENCLOSURE	28 litre, ABS	38 litre, composite material	68 litre, composite material
FINISH	Black or white textured paint	Black or white textured paint	Black or white textured paint
PROTECTIVE GRILLE	Standard models only: black or white perforated steel with scrim cloth backing "WR" models only: black or white perforated, zinc-plated steel with scrim cloth backing, Declon® synthetic fabric layer and inner, zinc-plated, hydrophobic steel mesh layer	Standard models only: black or white perforated steel with scrim cloth backing "WR" models only: black or white perforated, zinc-plated steel with scrim cloth backing, Declon® synthetic fabric layer and inner, zinc-plated, hydrophobic steel mesh layer	Standard models only: black or white perforated steel with scrim cloth backing "WR" models only: black or white perforated, zinc-plated steel with scrim cloth backing, Declon® synthetic fabric layer and inner, zinc-plated, hydrophobic steel mesh layer
CONNECTORS	Low-profile 20 A push-lock WR models only: weatherproof cover with gasket seal and cable gland	Low-profile 20 A push-lock WR models only: weatherproof cover with gasket seal and cable gland	Low-profile 20 A push-lock WR models only: weatherproof cover with gasket seal and cable gland
PIN CONNECTIONS	Left to right: Input+, Input -, Link -, Link +	Left to right: Input+, Input -, Link -, Link +	Left to right: Input+, Input -, Link -, Link +
FITTINGS	6 x M8 inserts for wall bracket 10 x M8 fly points	6 x M8 inserts for wall bracket 10 x M8 fly points	10 x M8 fly points
ENVIRONMENTAL	IP54 (Model CDD10-WR only)	IP54 (Model CDD12-WR only)	IP54 (Model CDD15-WR only)
DIMENSIONS	(W) 323 mm x (H) 515 mm x (D) 311 mm (W) 12.7 in x (H) 20.3 in x (D) 12.2 in	(W) 357 mm x (H) 571 mm x (D) 348 mm (W) 14.1 in x (H) 22.5 in x (D) 13.7 in	(W) 425 mm x (H) 691 mm x (D) 411 mm (W) 16.7 in x (H) 27.2 in x (D) 16.2 in
WEIGHT	15.3 kg (33.7 lb)	19.3 kg (42.5 lb)	27.7 kg (61 lb)
ACCESSORIES	WB10/12B wall bracket black WB10/12W wall bracket white CDDYA10B yoke assembly black CDDYA10W yoke assembly white	CDDWB10/12B wall bracket black CDDWB10/12W wall bracket white CDDYA12B yoke assembly black CDDYA12W yoke assembly white	CDDYA15B yoke assembly black CDDYA15W yoke assembly white

Notes

- (1) Measured on-axis in open (4pi) space at 2 metres, then referred to 1 metre.
- (2) AES Standard ANSI S4.26-1984.
- (3) Measured in open (4pi) space at 2 metres with 2.83V input, using band limited pink noise, then referred to 1 metre.
- (4) Calculated at 1 m.
- (5) Measured in open (4pi) space at 2 metres.

CSX112-F, CSX212-F

	CSX112-F	CSX212-F
TYPE	Compact, single driver, direct radiating subwoofer	Compact, dual-driver, direct radiating subwoofer
FREQUENCY RESPONSE ¹	48Hz – 150Hz ± 3dB, -10dB @ 35Hz	48Hz – 150Hz ± 3dB, -10dB @ 35Hz
DRIVER	12" (300 mm)/3" (75 mm) voice coil, long excursion, ferrite magnet, waterproof cone	2 x 12" (300 mm)/3" (75 mm) voice coil, long excursion, ferrite magnet, waterproof cone
RATED POWER ²	400 W AES, 16000 W peak	800 W AES, 3200 W peak
RECOMMENDED AMPLIFIER	MA3.0 VIA5002	MA5.2K iK42
SENSITIVITY ³	102 dB	105 dB
MAXIMUM SPL ⁴	128 dB continuous, 134 dB peak	134 dB continuous, 140 dB peak
NOMINAL IMPEDANCE	8 ohms	4 ohms
DISPERSION (-6 dB)	Omnidirectional	Omnidirectional
CROSSOVER	80–120 Hz, via DX0.5 or DX4.0 controller	80–120 Hz, via DX0.5 or DX4.0 controller
ENCLOSURE	52 litre, high-density MDF	100 litre, high-density MDF
FINISH	Black or white textured paint	Black or white textured paint
PROTECTIVE GRILLE	Black or white perforated steel	Black or white perforated steel
CONNECTORS	Low-profile 20 A push-lock WR models only: weatherproof cover with gasket seal and cable gland	Low-profile 20 A push-lock WR models only: weatherproof cover with gasket seal and cable gland
PIN CONNECTIONS	Left to right: Input+, Input -, Link -, Link +	Left to right: Input+, Input -, Link -, Link +
FITTINGS	12 x M10 fly points	12 x M10 fly points
ENVIRONMENTAL	IP24 (Model CSX112-FWR only)	IP24 (Model CSX212-FWR only)
DIMENSIONS	(W) 487 mm x (H) 385 mm x (D) 410 mm (W) 19.2 in x (H) 15.2 in x (D) 16.1 in	((W) 872 mm x (H) 385 mm x (D) 437 mm (W) 34.3 in x (H) 15.2 in x (D) 17.2 in
WEIGHT	21.5 kg (47.3 lb)	39 kg (86 lb)

Notes

- (1) Measured on-axis in half space at 2 metres, then referred to 1 metre.
- (2) AES Standard ANSI S4.26-1984.
- (3) Measured in half space at 2 metres with 2.83V input, using band limited pink noise, then referred to 1 metre.
- (4) Calculated in half space at 1 metre.

CSX118-F, CSX218-F

	CSX118	CSX218
TYPE	Compact, single driver, direct radiating subwoofer	Compact, dual-driver, direct radiating subwoofer
FREQUENCY RESPONSE ¹	40Hz – 150Hz ± 3dB, -10dB @ 35Hz	35Hz – 150Hz ± 3dB, -10dB @ 35Hz
DRIVER	18" (460 mm)/4" (100 mm) voice coil, long excursion, ferrite magnet, waterproof cone	2 x 18" (460 mm)/4" (100 mm) voice coil, long excursion, ferrite magnet, waterproof cone
RATED POWER ²	1000 W AES, 4000 W peak	2000 W AES, 8000 W peak
RECOMMENDED AMPLIFIER	MA5.2K iK42	MA9.6K, MA12KiK42 iK42
SENSITIVITY ³	102 dB	105 dB
MAXIMUM SPL ⁴	132dB continuous, 138 dB peak	138 dB continuous, 144 dB peak
NOMINAL IMPEDANCE	8 ohms	4 ohms
DISPERSION (-6 dB)	Omnidirectional	Omnidirectional
CROSSOVER	80–120 Hz, via DX0.5 or DX4.0 controller	80–120 Hz, via DX0.5 or DX4.0 controller
ENCLOSURE	160 litre, high-density MDF	330 litre high-density MDF
FINISH	Black or white textured paint	Black or white textured paint
PROTECTIVE GRILLE	Black or white perforated steel	Black or white perforated steel
CONNECTORS	Low-profile 20 A push-lock WR models only: weatherproof cover with gasket seal and cable gland	Low-profile 20 A push-lock WR models only: weatherproof cover with gasket seal and cable gland
PIN CONNECTIONS	Left to right: Input+, Input -, Link -, Link +	Left to right: Input+, Input -, Link -, Link +
FITTINGS	12 x M10 fly points	12 x M10 fly points
ENVIRONMENTAL	IP24 (Model CSX118F-WR only)	IP24 (Model CSX218F-WR only)
DIMENSIONS	(W) 530 mm x (H) 662 mm x (D) 640 mm (W) 20.9 in x (H) 26.1 in x (D) 25.2 in	(W) 1085 mm x (H) 530 mm x (D) 780 mm* (W) 42.7 in x (H) 20.9 in x (D) 30.7 in* *905 mm (35.6 in) with wheels
WEIGHT	42 kg (93 lb)	84 kg (185 lb)

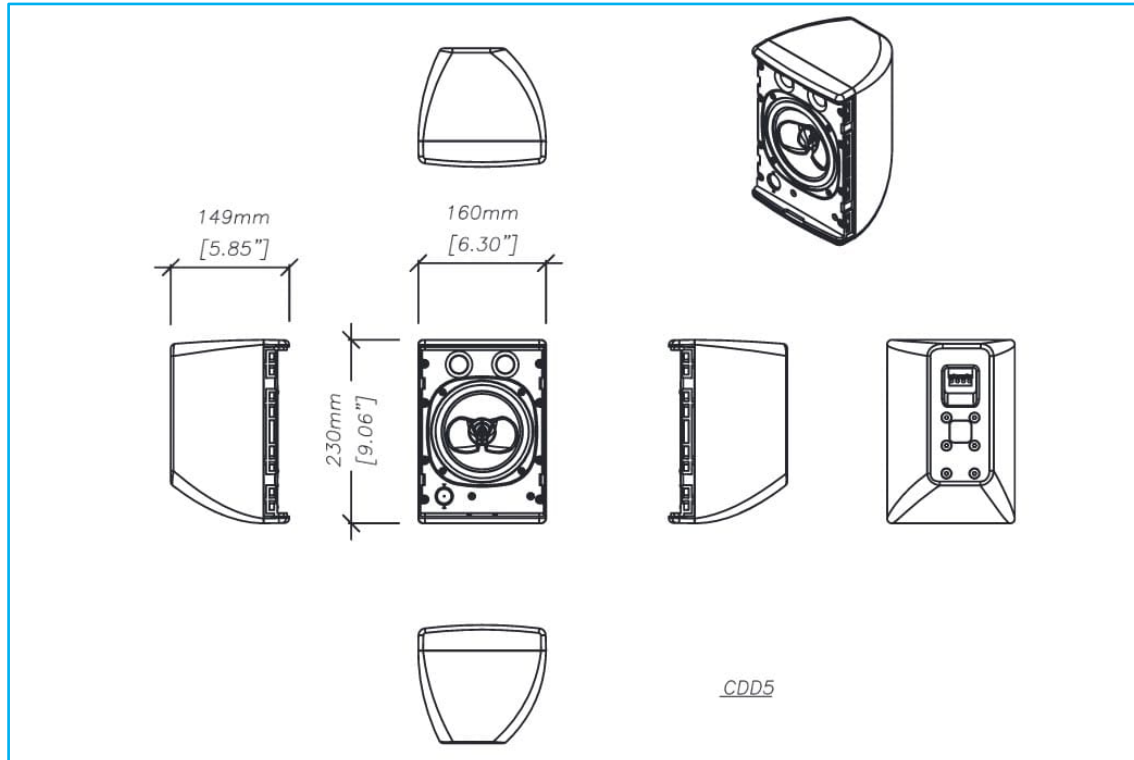
Notes

- (1) Measured on-axis in half space at 2 metres, then referred to 1 metre.
- (2) AES Standard ANSI S4.26-1984.
- (3) Measured in half space at 2 metres with 2.83V input, using band limited pink noise, then referred to 1 metre.
- (4) Calculated in half space at 1 metre.

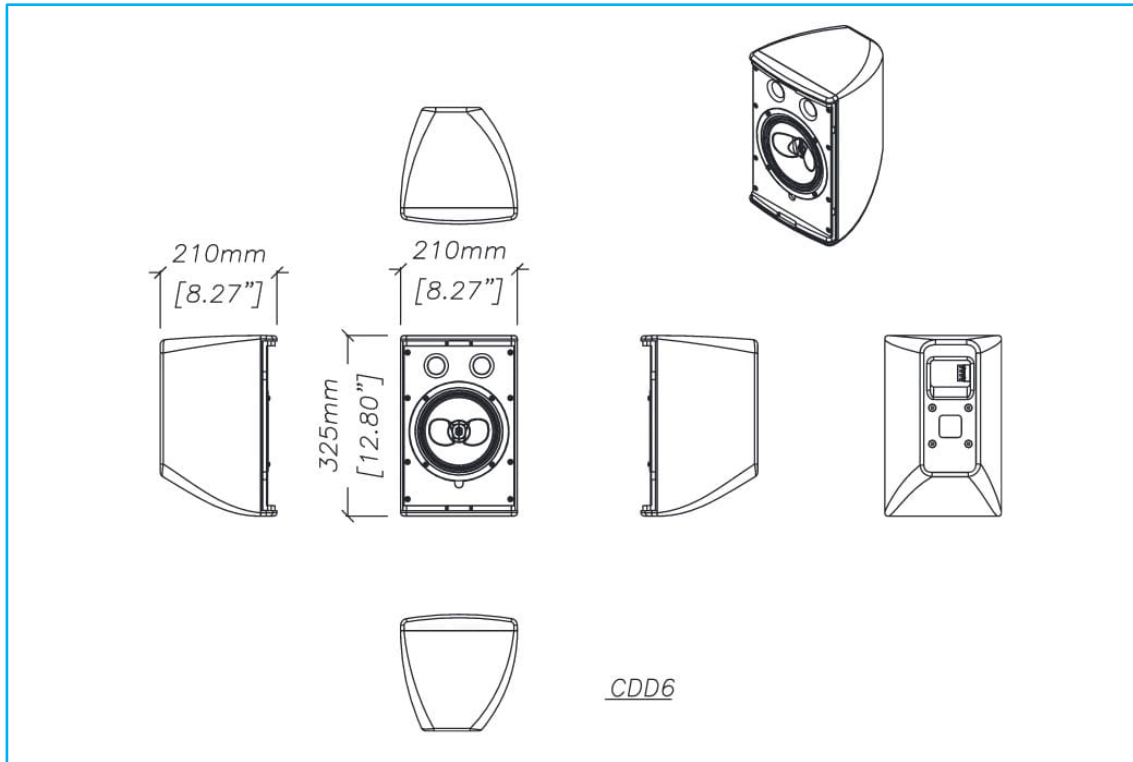
Technical Drawings

The drawings on the following pages depict the standard (non-Weatherised) models. All dimensions are also applicable to the Weatherised versions; note that the appearance of the rear panel differs slightly due to the additional weatherproof cover over the connector panel

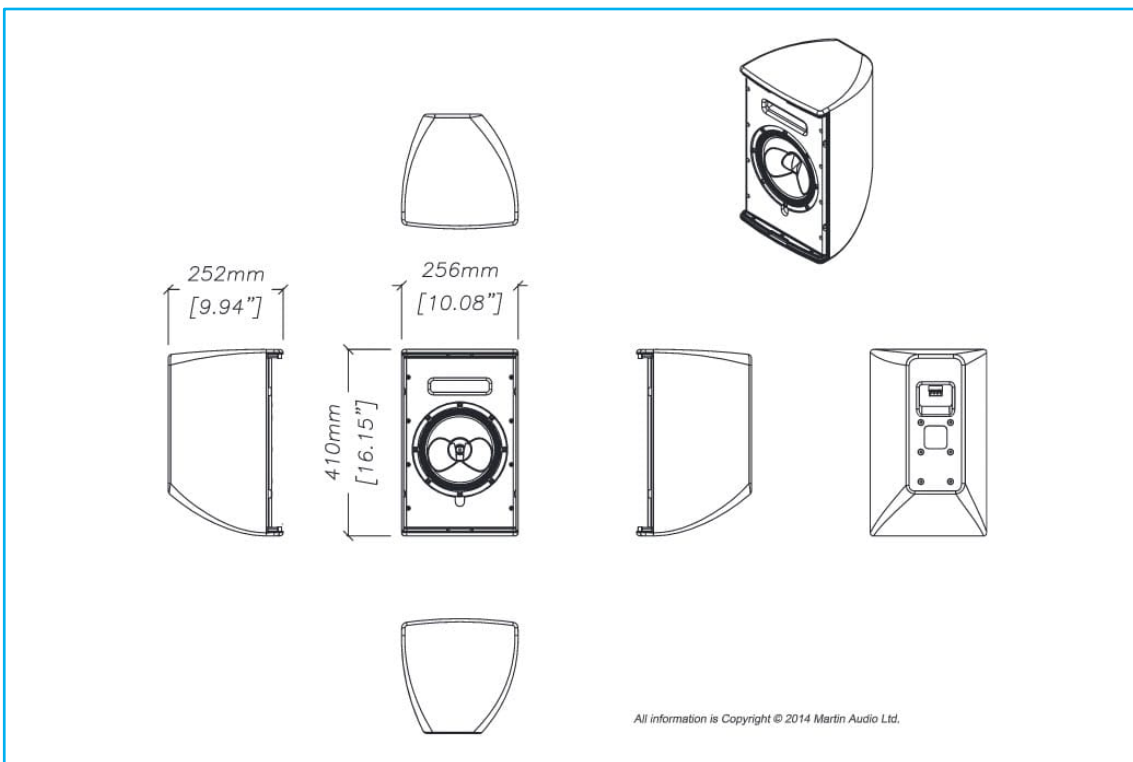
CDD5



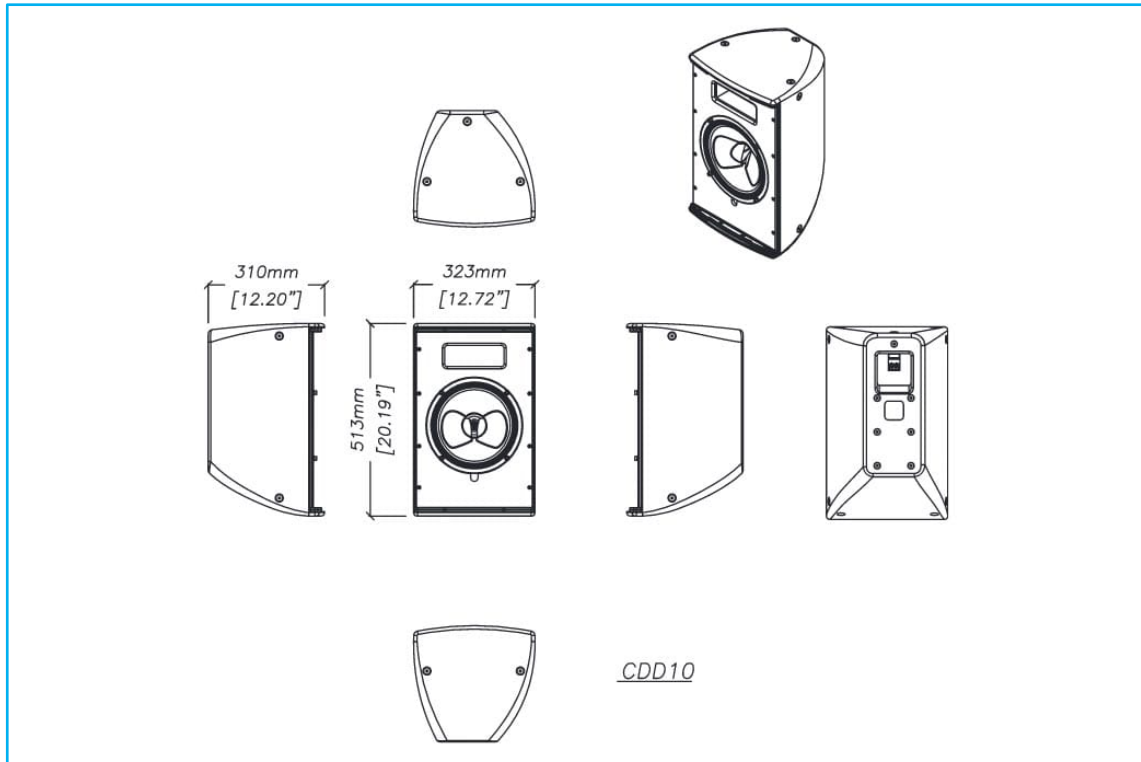
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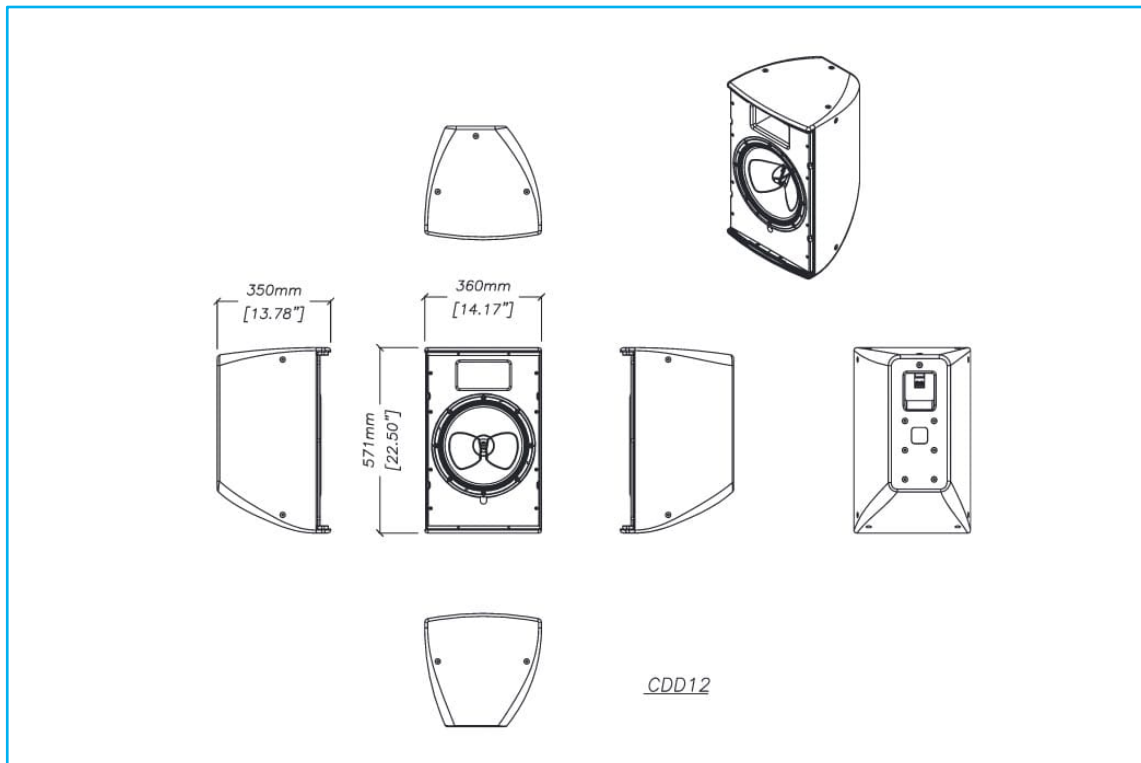
CDD8



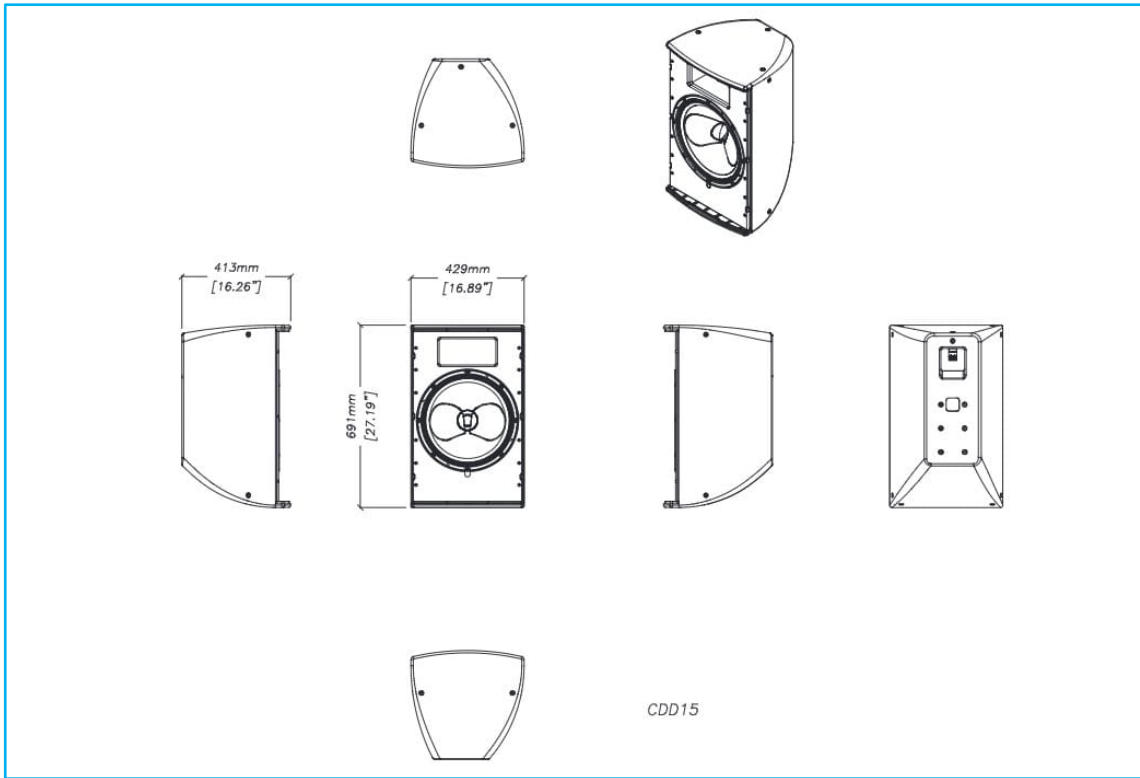
CDD10



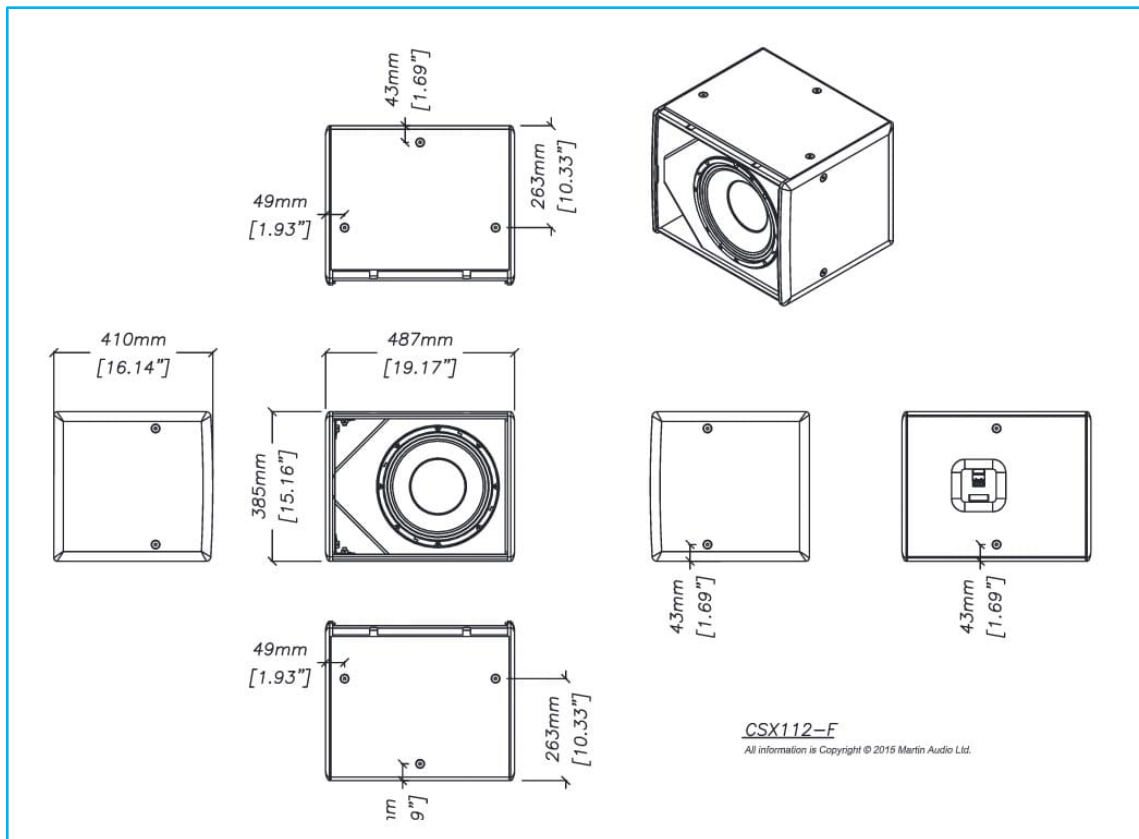
CDD12



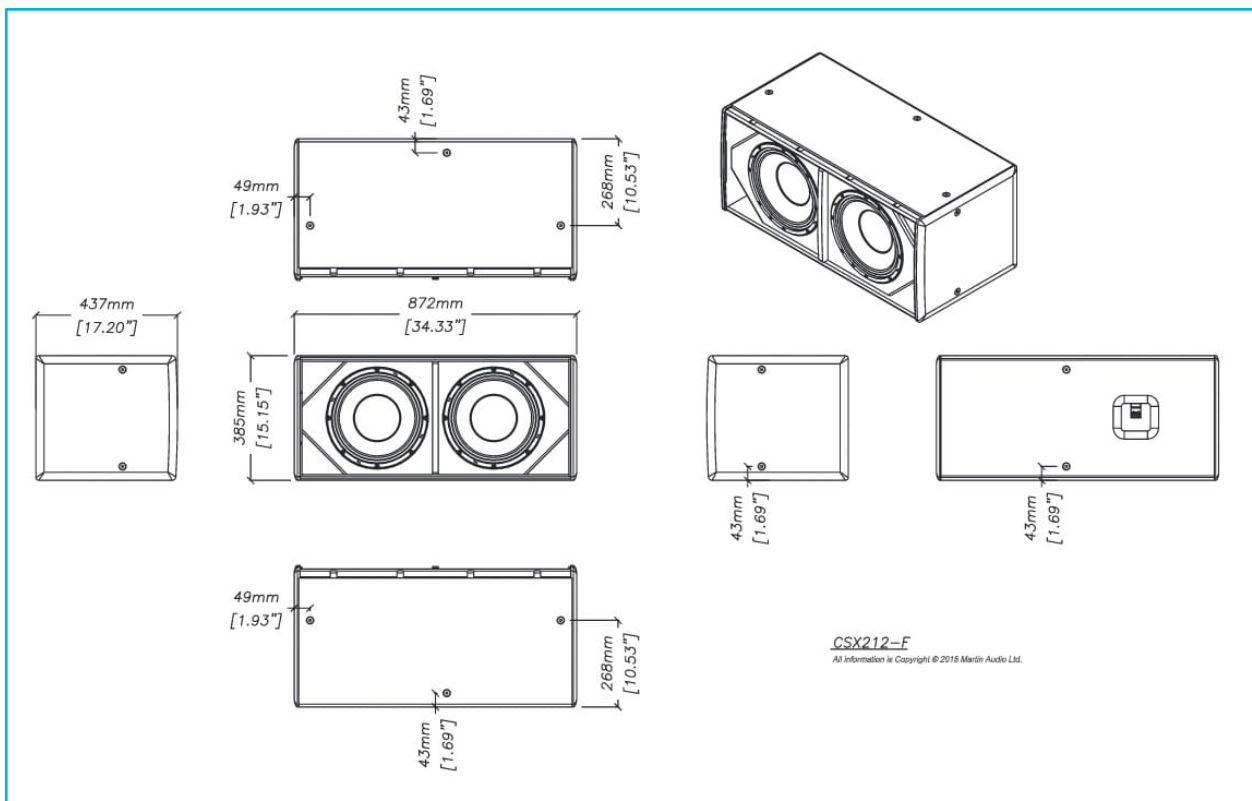
CDD15



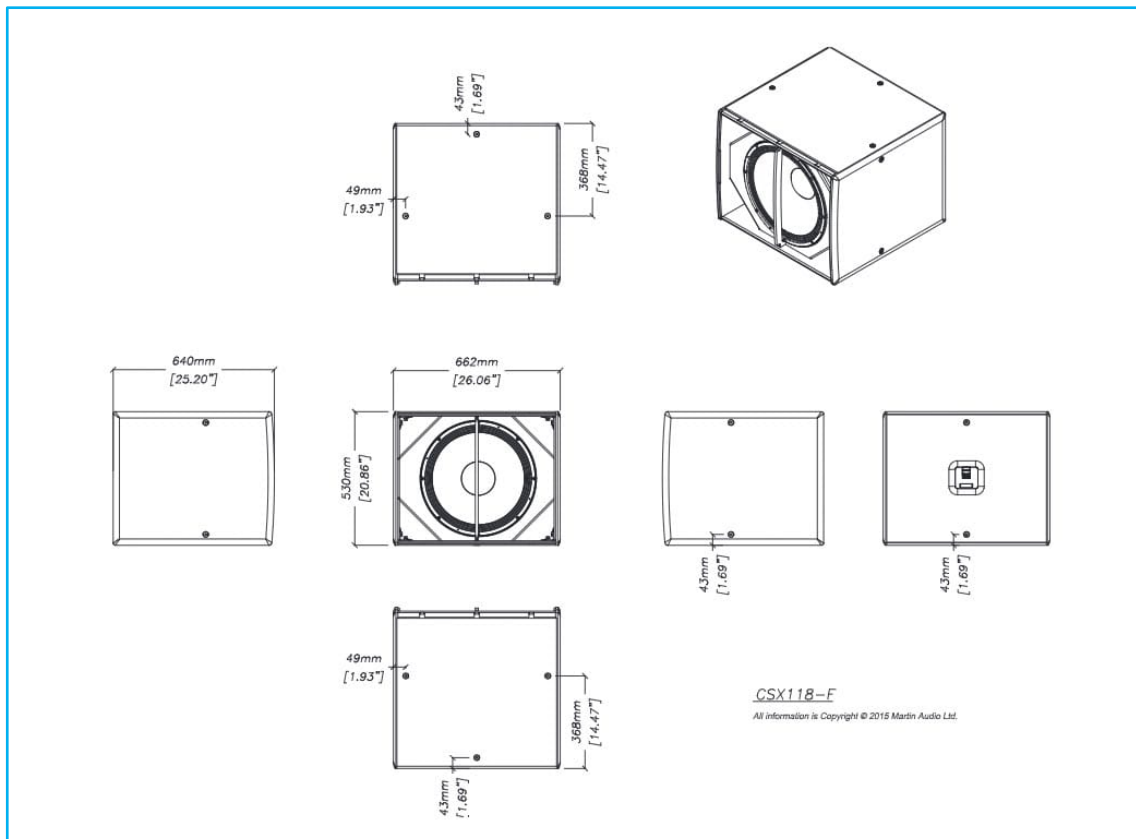
CSX112-F



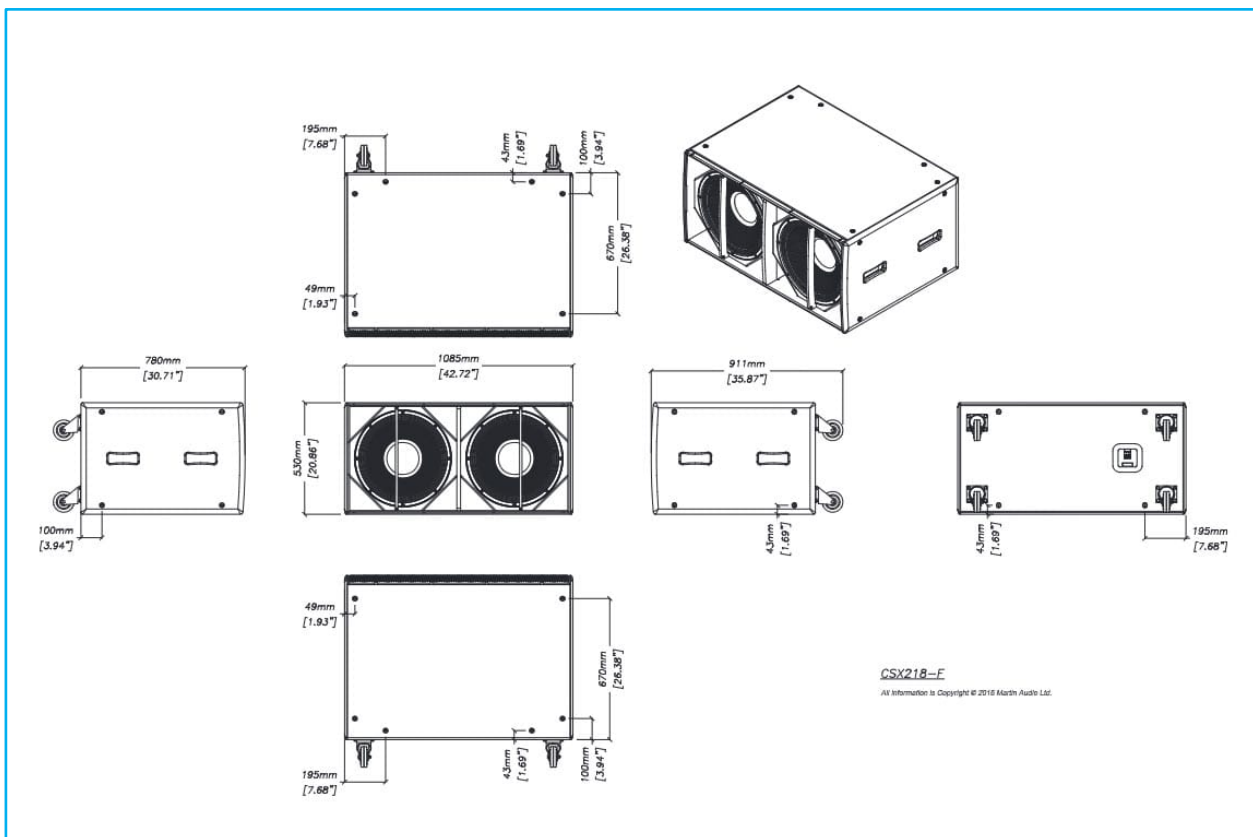
CSX212-F



CSX118-F



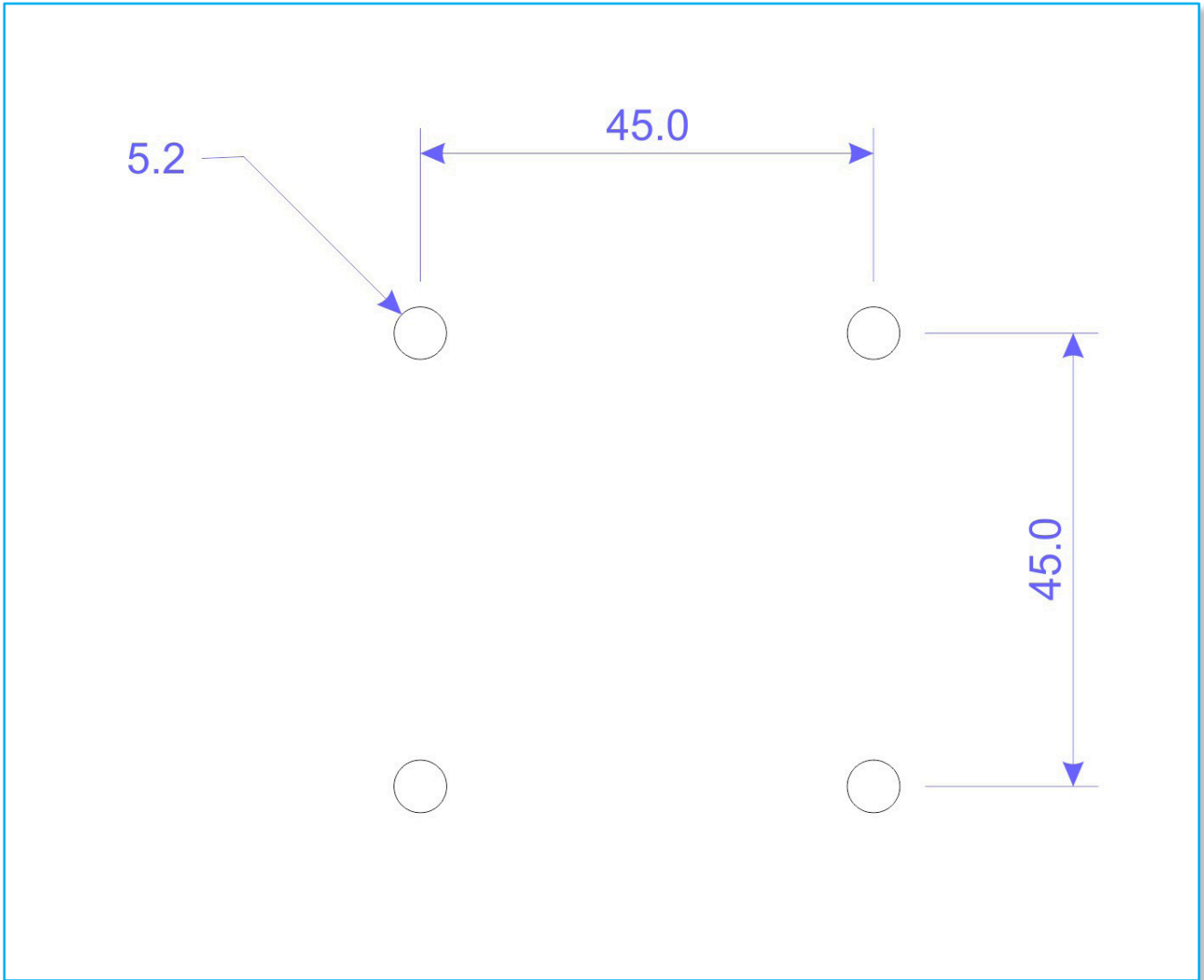
CSX218-F



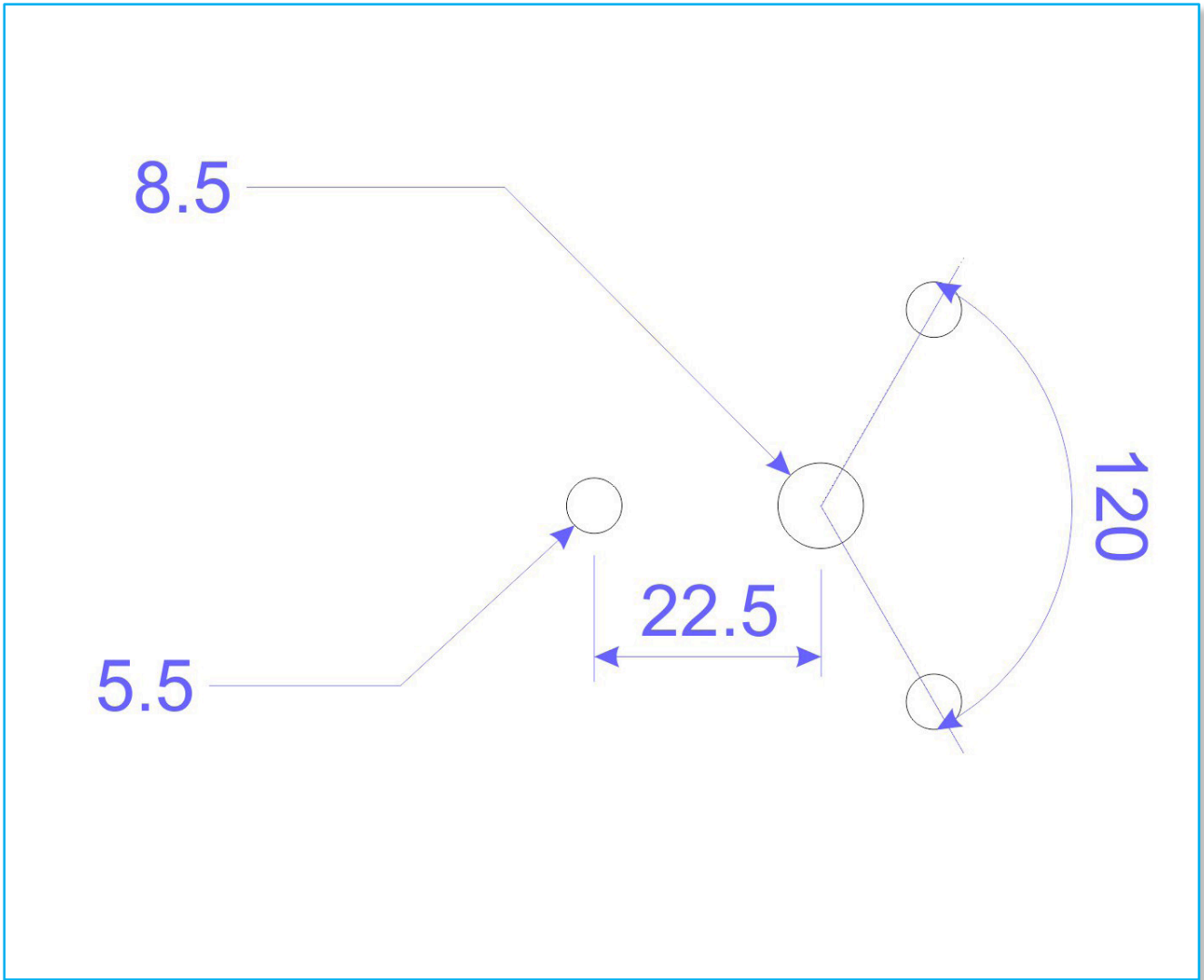
SPEAKER BRACKET TEMPLATES

Any of the bracket templates included in this Appendix section may be printed (select the page you need in your printer dialogue box) and use it as a drilling template. Note that it is essential to select the “Actual size” printing option if your computer/printer combination supports one, otherwise the printed drilling template will be inaccurate and not real size.

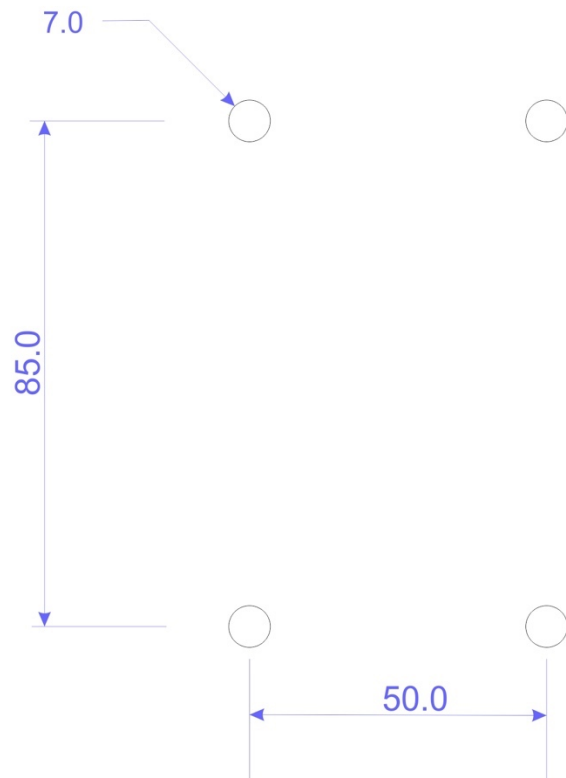
CDD5 Wall Bracket



CDD5 Ceiling Bracket

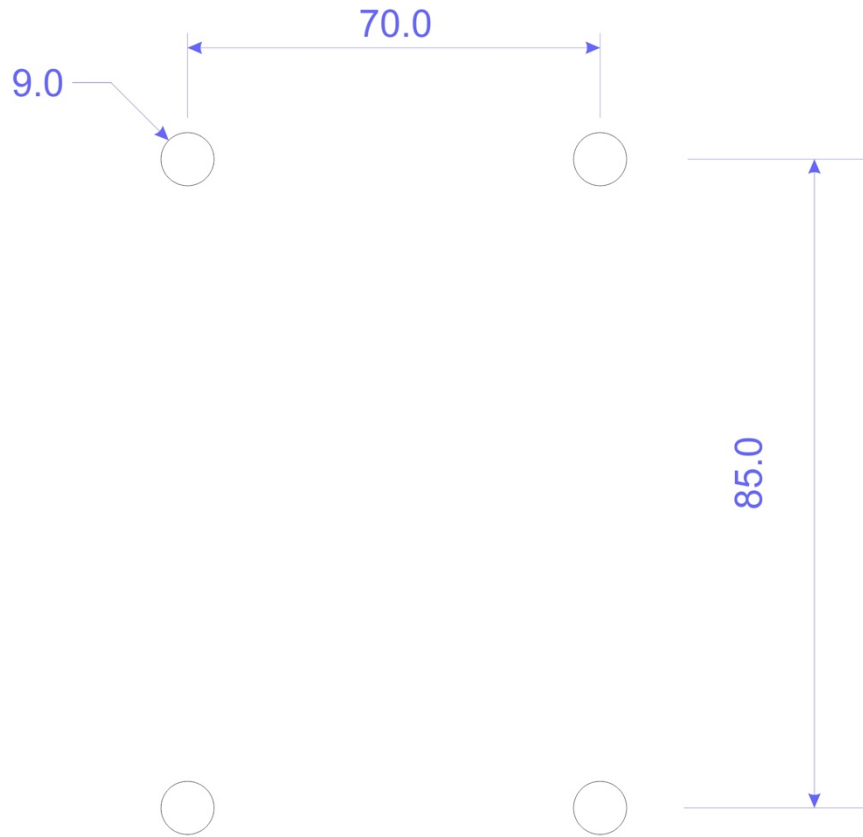


CDD6 & CDD8 Wall Bracket



CDD6 / CDD8 WALL BRACKET
TEMPLATE

CDD10 & CDD12 Wall Bracket



CDD10 / CDD12 WALL BRACKET TEMPLATE



WARRANTY

Martin Audio CDD and CSX Series Loudspeakers are warranted against manufacturing defects in materials or craftsmanship over a period of 5 years 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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