

BlacklineX

User Guide





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Introduction

Thank you for purchasing a Martin Audio BlacklineX Series system. Now, with BlacklineX, Martin Audio's R&D team has engineered a classic suite of passive loudspeakers for the modern era. Delivering the signature sound of warmth, nuance and clarity but with improved overall performance at a price point not previously possible, BlacklineX is a clean, smart design with no compromise between the needs of installation and portability. Applications range from portable sound reinforcement and stage monitoring for live bands, DJ's and corporate events, to installations in nightclubs, bars, commercial spaces and HoW.

Comprising four two-way systems — from the ultra-compact X8 to the powerful X15 — and three subwoofers, including an unobtrusive low-profile model, the multi-purpose BlacklineX Series raises the performance of loudspeaker systems in its class to a new level. Each symmetrical, multi-angle full-range enclosure features a user rotatable horn for horizontal or vertical orientation, and has a screw-free, cloth-backed steel grille. Comprehensive mounting options include wall bracket, eyebolt suspension and pole-mounting. Ergonomic handles at the rear of each full-range enclosure make for easy handling while maintaining clean lines for installed systems where handles on the cabinet's side are likely to look obtrusive.

All BlacklineX Series enclosures are constructed from birch/poplar plywood and finished with a durable black textured paint, with white and custom RAL colour options available to order.

Professional and affordable, BlacklineX puts Martin Audio signature sound within easy reach of musicians, DJ's and systems integrators— the Blackline heritage re-imagined for the modern era.

Because the X8, X10, X12 and X15 are passive systems embodying correct acoustic design principles, they can be used without a controller provided their AES and peak power ratings are not exceeded and care is taken to avoid amplifier clipping. For maximum performance, however, we recommend that BlacklineX Series systems are used with the Martin Audio DX0.5 which is a highly versatile 2 input 6 output digital loudspeaker processor, economically priced to make it an excellent match for the BlacklineX range. A Project file with parameters for the range can be downloaded from the Martin Audio website and can quickly and easily be uploaded to a DX0.5 using the DX0.5 software application which is also available as a free download from the Software section on the Martin Audio website. The Martin audio DX1.5 or DX2 system controllers can also be used and a spreadsheet with parameters for the BlacklineX range is also available from the Loudspeaker setting page in the Support section of the website.

Unpacking

Each Martin Audio BlacklineX Series 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 or distributor if any such damage is found. It is suggested that you retain the original packaging so that the system can be repacked at a future date if necessary.

Please note that Martin Audio and its distributors cannot accept any responsibility for damage to any returned product through the use of non-approved packaging.

BlacklineX Series overview

The BlacklineX Series is made up of...

2-way full-range systems:

X8 (8" + 1")

X10 (10" + 1")

X12 (12" + 1")

X15 (15" + 1")

Direct radiating ported sub-bass systems

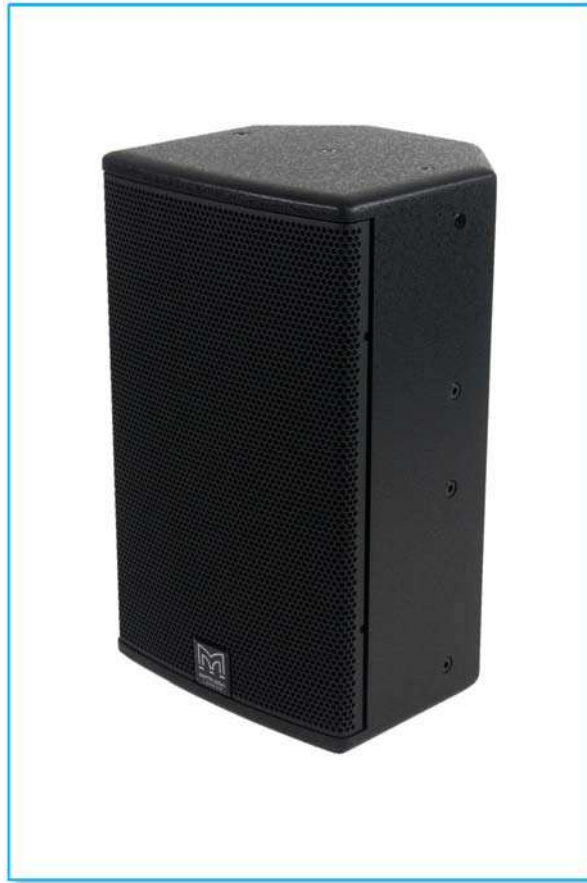
X115 (single 15", ported) user-selectable 120Hz low-pass filter

X118 (single 18", ported) user-selectable 120Hz low-pass filter

X210 (2 x 10", ported) user-selectable 120Hz low-pass filter

2-way passive full-range systems

X8



The X8 is an ultra-compact passive two-way system featuring an 8" (200mm)/2" (50mm) voice coil LF driver and a 1" (25mm) HF driver mounted on a 90° x 50° horn which can be easily rotated for horizontal or vertical orientation. It's very small size gives no indication of its high output capability.

As a stand-alone loudspeaker, it has a multitude of professional applications— from distributed sound reinforcement, HoW and AV events to front-fill/infill and use as a micro stage monitor. Complemented by a BlacklineX subwoofer, it is the ideal, simple-to-use system for portable applications and installations which call for an unobtrusive system that can deliver pristine sound over short and medium throw distances.

The X8 is constructed from birch/poplar plywood and fitted with a screw-free steel grille, M8 inserts for a wall bracket and eyebolt suspension, plus a pole-mount socket. The X8 may be used with or without a system controller. For demanding applications, Martin Audio recommends a DX0.5 system controller configured to perform EQ and limiter functions. The DX0.5 may also be used to configure systems for additional sub-bass cabinets – e.g. X8 + X115 or X210

X10



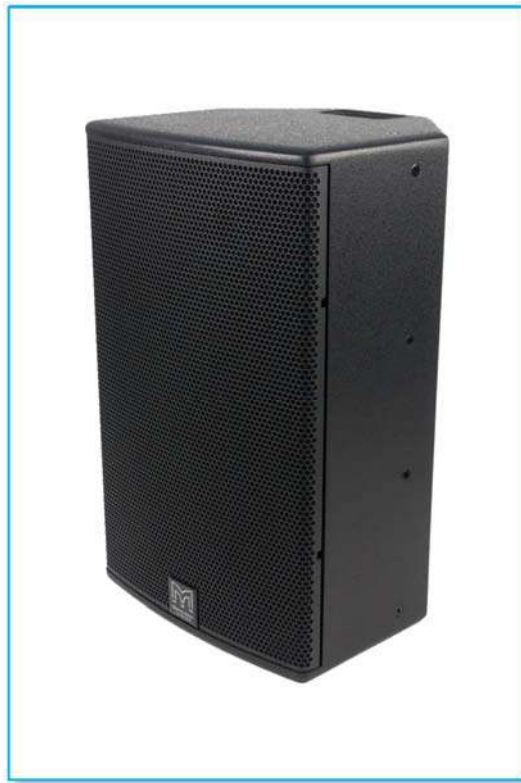
The X10 is a high performance yet very compact two-way passive loudspeaker system which utilises a 10" (250mm)/2.5" (63mm) voice coil LF driver and a 1" (25mm) exit HF compression driver with a 1.4" (35mm) polyimide diaphragm. The rotatable 90° x 50° HF horn has equal horizontal and vertical mouth dimensions for directivity control in both planes.

With a maximum SPL of 124dB @ 1m, it is uniquely placed to meet the foreground requirements of music bars and clubs that require upfront sound levels from a very compact enclosure. Use with a BlacklineX Series subwoofer will enable the X10 to operate as small dancefloor or sound reinforcement system that is remarkably powerful for its size, as well as being extremely portable.

The X10 is constructed from birch/poplar plywood and fitted with a screw-free steel grille, M8 inserts for a wall bracket and eyebolt suspension, plus a pole-mount socket.

The X10 may be used with or without a system controller. For demanding applications, Martin Audio recommends a DX0.5 system controller configured to perform EQ and limiter functions. The DX0.5 may also be used to configure systems for additional sub-bass cabinets – e.g. X10 + X115 or X118

X12



The X12 fulfils the requirement for a compact system that can deliver high sound levels — either as a stand-alone system or supplemented by a BlacklineX subwoofer. Featuring a 12" (300mm) LF driver unit and a 1" (25mm) exit compression driver on a rotatable horn, its 80° x 50° dispersion pattern is ideal for medium throw applications. The LF driver has a 2.5" (65mm) voice coil and a high BL motor, while the HF compression driver utilises a 1.75" (44mm) polyimide diaphragm for extended high frequency response.

The X12's enclosure is constructed from birch/poplar plywood and coated in black textured paint. For easy removal, its steel grille is a spring-fit into the sides of the enclosure. It is fitted with M8 inserts for a wall bracket and eyebolt suspension, plus a pole-mount socket with a removable bung that maintains clean lines when the X12 is used in install applications.

The X12 may be used with or without a system controller. For demanding applications, Martin Audio recommends a DX0.5 system controller configured to perform EQ and limiter functions. The DX0.5 may also be used to configure systems for additional sub-bass cabinets — e.g. X12 + X115 or X118

X15



The X15 is a very high-power, passive two-way system designed for professional portable applications and installations that demand the ultimate in sonic performance from a single enclosure. With an accurately-defined 80° x 50° coverage pattern, it combines very high output capability with exceptional sonic performance and impact.

It features a powerful 15" (380mm)/3" (75mm) voice coil LF drive unit, and a 1" (25mm) exit HF compression driver with a 1.75" (44mm) polyimide diaphragm for extended high frequency response.

Its protective steel grille is a spring-fit into the sides of the enclosure for easy access to rotate the HF horn. The symmetrical, multi-angle enclosure is manufactured from birch/poplar ply and coated in textured black paint. It is fitted with M8 inserts for a wall bracket and eyebolt suspension, plus a pole-mount socket.

The X15 may be used with or without a system controller. For demanding applications, Martin Audio recommends a DX0.5 system controller configured to perform EQ and limiter functions. The DX0.5 may also be used to configure systems for additional sub-bass cabinets – e.g. X15 + X118

Sub-bass systems

X115



The X115 is a very compact subwoofer designed to augment the low frequency performance of BlacklineX Series full-range systems. It comprises a long excursion 15" (380mm)/3" (75mm) voice coil driver in a bass reflex enclosure and can be used singly, stacked or flown via integral M10 inserts. Four large ports contribute to a reduction in air noise at high output levels.

The enclosure is constructed from birch/poplar ply with a textured paint finish and the driver is protected by an impact-resistant perforated steel grille which is pre-curved to resist damage. The X115 has a 35mm pole-mount fitting in the top surface that can be used to pole mount an X8, X10, or X12 above the enclosure, and two side handles for easy handling.

The S115 is designed for use in a two way active bi-amp system. A DX0.5 system controller is the idea system controller to provide the active crossover function and enhanced control facilities.

X118



The X118 is a compact, high performance subwoofer for use with BlacklineX Series full-range loudspeakers. It extends the low frequency operating range of the combined system to 42Hz and provides exceptional low frequency impact. It can be used singly, stacked or flown via integral M10 insets and features a long-excursion 18" (460mm)/3" (75 mm) voice coil driver in a compact reflex enclosure. Its four reflex ports have a large frontal area to reduce turbulent air noise at very high levels.

The X118 enclosure is constructed from birch/poplar ply and finished in textured black paint. A perforated steel grille protects the driver, and the enclosure has a 35mm pole-mount fitting in the top surface and two side handles.

The S118 is designed for use in a two way active bi-amp system. A DX0.5 system controller is the idea system controller to provide the active crossover function and enhanced control facilities.

X210



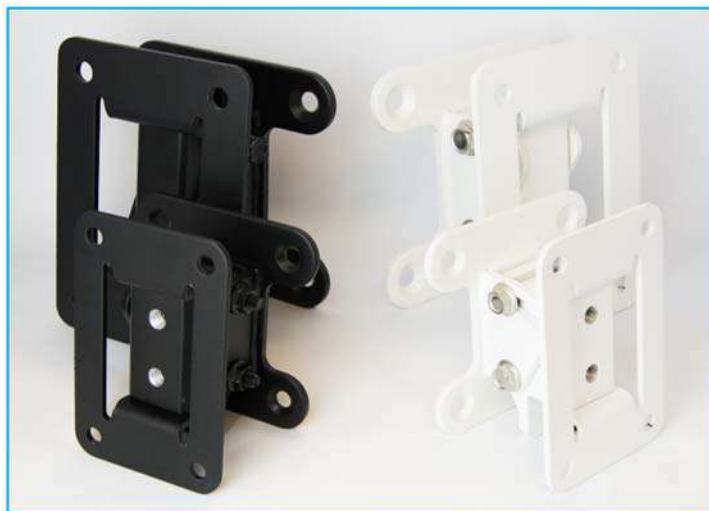
The X210 is a slimline dual-driver subwoofer designed for situations that call for a visually unobtrusive enclosure. It can be used singly, stacked or flown via integral M10 inserts and its ultra-compact size makes it ideal for applications where space is limited. It features dual 10" (250mm)/2" (50mm) voice coil drivers and generously sized low frequency ports for reduced air noise. The enclosure is constructed from birch/poplar ply with a textured paint finish and the drivers are protected by an impact-resistant perforated steel grille. It has twin ergonomic handles at the rear of the enclosure for easy handling.

The S210 is designed for use in a two way active bi-amp system. A DX0.5 system controller is the idea system controller to provide the active crossover function and enhanced control facilities.

Accessories

A comprehensive range of accessories is available for the BlacklineX range for both portable and installation use.

Wall Brackets



The BlacklineX range shares the mounting configuration of the CDD installation range so the same wall brackets can be employed. These are a two part bracket enabling the wall section to be fitted at first fix stage when cables are run. The cabinet half can be fitted to the speaker in advance of arriving at site so that final installation is just a case of joining the two halves of the bracket and adjusting the position for the coverage required, and connecting the cable.

The brackets for each model are as follows:-

Blackline X8	WB6/8B
Blackline X10	WB10/12B
Blackline X12	WB10/12B
Blackline X15	WB10/12B

Eye Bolts



All Blackline X Series speakers have threaded inserts available for flown applications in fixed installations. All full range cabinets have M8 inserts, all sub woofers have M10 inserts. The inserts can be used for fitting bespoke flying hardware or for flying using Eye Bolts. These must be forged steel shouldered types certified with a safe working load in excess of the cabinet weight. Do NOT be tempted to use cheap formed steel types commonly available from DIY stores as they are unsafe for flying heavy speaker cabinets. Correctly rated shouldered eye bolts are available from Martin Audio as an optional accessory, part numbers are as follows;-

M8 (Blackline X8, 10, 12, 15) HTK00003

M10 (Blackline X210, 115, 118) HTK00004

Pole Mount



BlacklineX Series speakers have integral pole mount "top hat" fittings. These are fitted to the base of all full range speakers; X8, 10, 12 and 15, and on the top of the Blackline X115 and 118. The fittings all use the standard 35mm diameter so they can be used with any regular speaker stand or accessory. The fitting in the subs allows use of a mounting pole to elevate one of the full range cabinets on top of the sub without the need for a bulky and unsightly tripod stands. Distance poles are also widely available but Martin Audio make a pole specifically for use with the Blackline range. The part number is an **HTKCT04**. This will support any of the full range cabinets at the optimum height above either an X115 or X118.



Safety first

It is important that loudspeaker systems are used in a safe manner. Please take some time to review the following points concerning safe use of Blackline Series loudspeakers.

Professional loudspeakers are capable of producing extremely high sound levels and should be used with care. Hearing loss is cumulative and can result from levels above 90dB if people are exposed for a long period. Never stand close to loudspeakers driven at high level.

Pole or stand mounting

BlacklineX full-range loudspeakers incorporate pole mounting ("top hat") sockets so that they may be pole or stand mounted.

When using poles or stands, the following precautions are advised:

- Ensure that the stand will support the weight of the speaker by checking the stand manufacturers rating. (See the Section 10 – Technical Specifications - for individual BlacklineX weights and dimensions)
- Make sure that the stand is placed on a level surface and that its legs are fully extended
- Do not place more than one speaker on each stand
- Run cables so that they do not present a trip hazard which could pull the speaker over
- When used outdoors in the wind, it may be necessary to add some weight to the base of the stand
- When using a pole mount with a sub-bass system, observe similar precautions.

Stacking

- Ensure that the floor or stage is level and solid
- Do not stack speakers too high outdoors where winds could topple the stack
- Be aware that speakers producing very high power levels can move or creep. To avoid this, place friction material between the floor and speaker and between each speaker or use strapping to secure the stack.

Rigging and suspension

WARNING: Suspending the system should only be done by qualified personnel following safe rigging practices. Secure fixings to the building structure are vital. Seek help from architects, structural engineers or other specialists if in any doubt.

BlacklineX Series enclosures are designed for portable applications, but can be suspended singly by means of the threaded inserts provided. Enclosures are fitted internally with steel corner reinforcement brackets, where necessary, to ensure that each cabinet is strong enough to be hung from its top.

- Never suspend one enclosure from another to form an array or cluster using these fittings
- The common practice of using commercially available eye bolts for suspension should only be undertaken with great caution. Only forged shoulder eye bolts should be considered and it is important that the thread length is at least 30mm
- Formed eye bolts i.e. those which are formed from a steel rod bent into an eye are ***not*** recommended
- Eye bolts are strongest along the thread axis. Angling the enclosure will result in an angle pull and it is important to use eye bolts that are safe in these circumstances.

Amplification

Choosing a power amplifier

Martin Audio loudspeakers are capable of recreating musical dynamics accurately and with incredible impact if powered correctly. Martin Audio loudspeaker power ratings are quoted for AES power - a long-term average power rating with a much closer relation to a music signal than other measurement standards such as RMS, and Peak power – a short-term burst capability.

Moving coil loudspeakers can be run up to their AES power rating continuously and up to the higher Peak power rating for transient musical peaks. All BlacklineX Series speakers have a peak power rating four times the long-term AES rating. Ideally you should use an amplifier that can deliver the full peak rating without risk of clipping. This however may be beyond the budget for many so a good compromise is to aim for an amplifier that can deliver at least twice the AES rating.

This is particularly the case for the amplifier driving an X8, 10, 12 or 15 when they are used in conjunction with an X210, 115 or 118 as the sub cabinet will be delivering the majority of the energy in the program material. Do not however scrimp on the amplifier driving the subwoofer.

This should be acceptable for many applications but be aware of the limitations particularly if the system is used with uncompressed live music. In particular it is vital to avoid amplifier clipping, this is possibly the biggest single cause of damage to speaker drivers. The clipped waveform has a colossal harmonic output at ultra-high frequencies all being delivered at the full power capability of the amplifier so speaker damage is extremely likely.

The amplifier selection table below will assist in choosing an amplifier to suit your application at an acceptable price point.

Gain Settings

The vast majority of professional and even budget amplifiers on the market these days have a standard front to back gain regardless of their output power capability. The industry standard gain figure is 32dB which is a gain of X40. This figure is a good balance between enough gain to run that majority of systems without having to drive mixers and any other processing equipment at a level so high that there is a risk of clipping, and not too much gain which would raise the noise floor of the system. When using a DX0.5 or other system processor which has a limiter function you should always use the limiter settings shown in the parameter chart (see the chapter on the DX0.5 Speaker Processor). The limiter threshold is calculated to allow the maximum level from your system without damage and is based on a known amplifier gain setting- 32dB by default. For that reason it is vital that if the amplifier has front panel gain controls they MUST be set FULL UP. Lowering them does not offer more protection for your system, it just changes the gain setting of the amplifier so a greater input level is required to obtain the maximum power from the amp. This will make the limiter in the system controller useless as the gain is no longer at the setting for which the threshold has been calculated. For optimum performance always observe the following:-

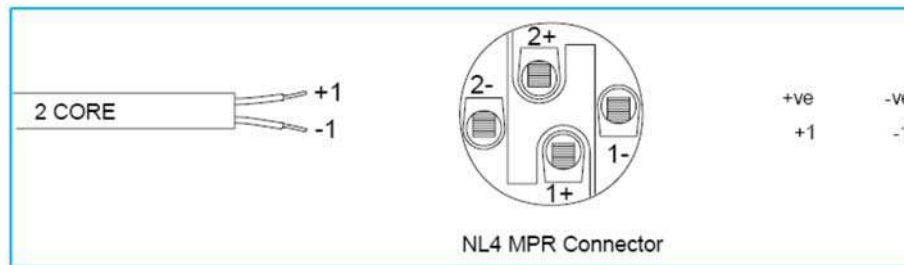
- Use a DX0.5 or high quality system processor
- Use the published Parameters for the BlacklineX range
- Use an amplifier with a gain of 32dB (X40)
- Always run front panel gain controls full up
- Avoid amplifiers that only quote a sensitivity rating; "xxdB for maximum output" (i.e. no published gain setting)

Recommended Amplifiers

Model	AES Power Rating	Peak Power Rating	Ideal amplifier rating		Minimum rating		Martin Audio amplifiers
			4Ω	8Ω	4Ω	8Ω	
X8	200W	800W	1,600W	800W	800W	400W	MA3.0, MA2.8Q
X10	250W	1,000W	2,000W	1,000W	1,000W	500W	MA3.0, MA2.0
X12	300W	1,200W	2,400W	1,200W	1,200W	600W	MA5.2K, MA5.0Q
X15	400W	1,600W	3,200W	1,600W	1,600W	800W	MA9.6K, MA3.0
X115	500W	2,000W	4,000W	2,000W	2,000W	1,000W	MA12K, MA5.2K
X118	500W	2,000W	4,000W	2,000W	2,000W	1,000W	MA12K, MA5.2K
X210	500W	2,000W	2,000W	1,000W	1,000W	500W	MA3.0, MA2.0

Connections

There is a notable difference between the connections available of the Full Range systems, the X8, 10, 12, 15 plus the X210 subwoofer, and the X115 and X118 subs. The full range speakers have a connector panel with two Neutrik Speakon connectors wired in parallel with each other. The second connector allows use of a short link lead to power another, parallel BlacklineX loudspeaker. The connectors are wired as follows:

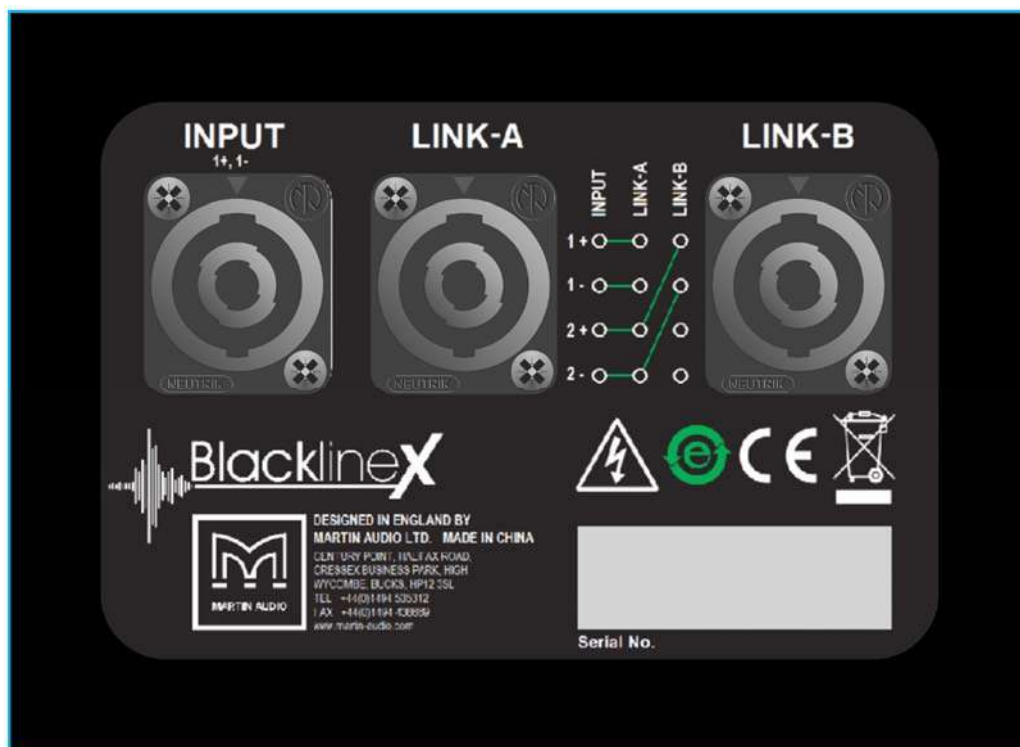


X8, X10, X12, X15, X210

Note that although connections 2+/- are not used within the cabinets, they are still wired in parallel between the two NL4 connectors.

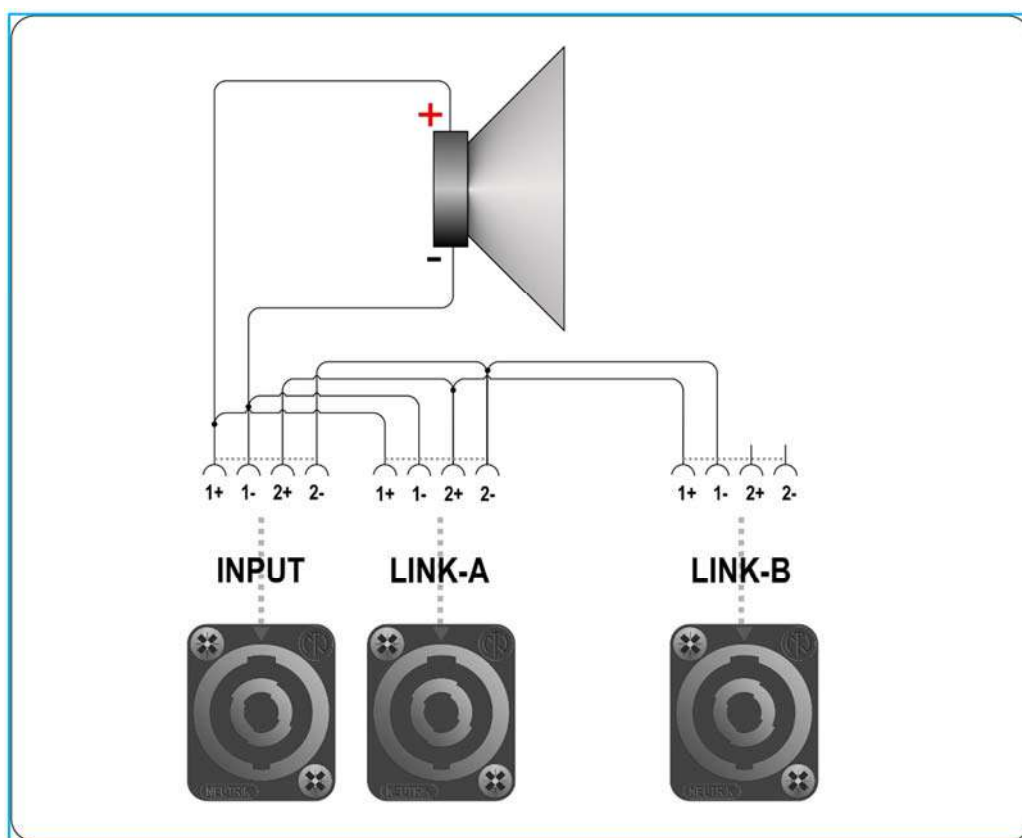
Sub-Woofer Connections

The X210 has two paralleled NL4 Speakons however the X115 and X118 subwoofers feature an additional NL4 connector which can be utilised to connect from the Subwoofer up to a full range cabinet when running a system bi-amped using a DX0.5 as a 2-way crossover and independent amplifiers for the sub and full range cabinets. This is the rear panel of those models;-

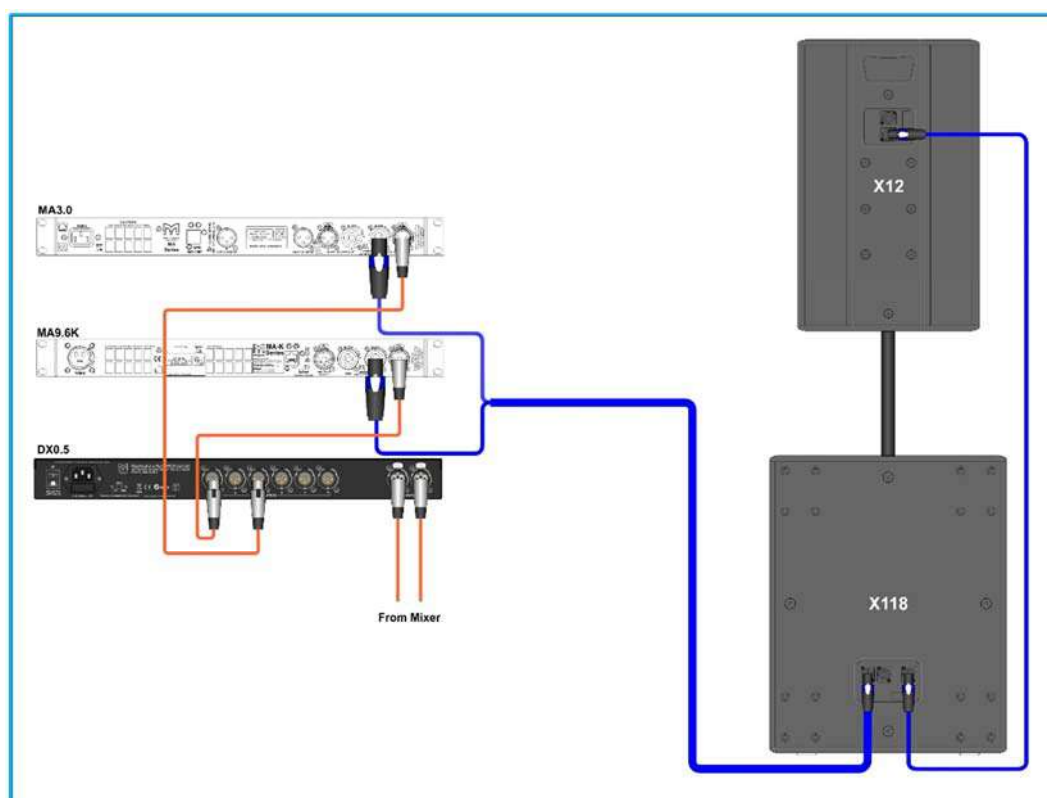


The Input and Link-A NL4 connectors are paralleled together with the feed to the driver in the Sub cabinet taken from the connection to pins 1+/- . The connection to pins 2+/- is also paralleled and routed to pins 1+/- on the Link-B connector. This means that a bi-amp signal can be fed via a 4-core speaker cable carrying the sub feed on two cores connected to pins 1+/- and the mid-top feed on the two cores connected to 2+/- . This is plugged into the input. A conventional NL4 cable then connects from Link-B up to your BlacklineX full range speaker; X8, 10, 12 or 15. The system operates in full bi-amp mode with extremely neat and tidy cabling.

This diagram shows how the connectors are wired internally in the sub cabinets;-



This shows how a bi-amped system would be wired (single channel only shown for clarity);-





A Dx0.5 is used to provide the crossover function, output 1 is connected to channel A on an MA9.6K amplifier to drive the X118, channel 3 is connected to channel A on an MA3.0 to drive the X12s. The outputs from the amplifiers are combined into a single 4-core cable with the MA9.6K feeding pins 1+/- and the MA3.0 feeding pins 2+/- (note that at the amplifier connection both Speakon connectors have connections made to pins 1+/-).

The 4-core cable is connected to the Input on the X118, Link-A is available to connect to a second sub for shows requiring very high levels of sub frequency.

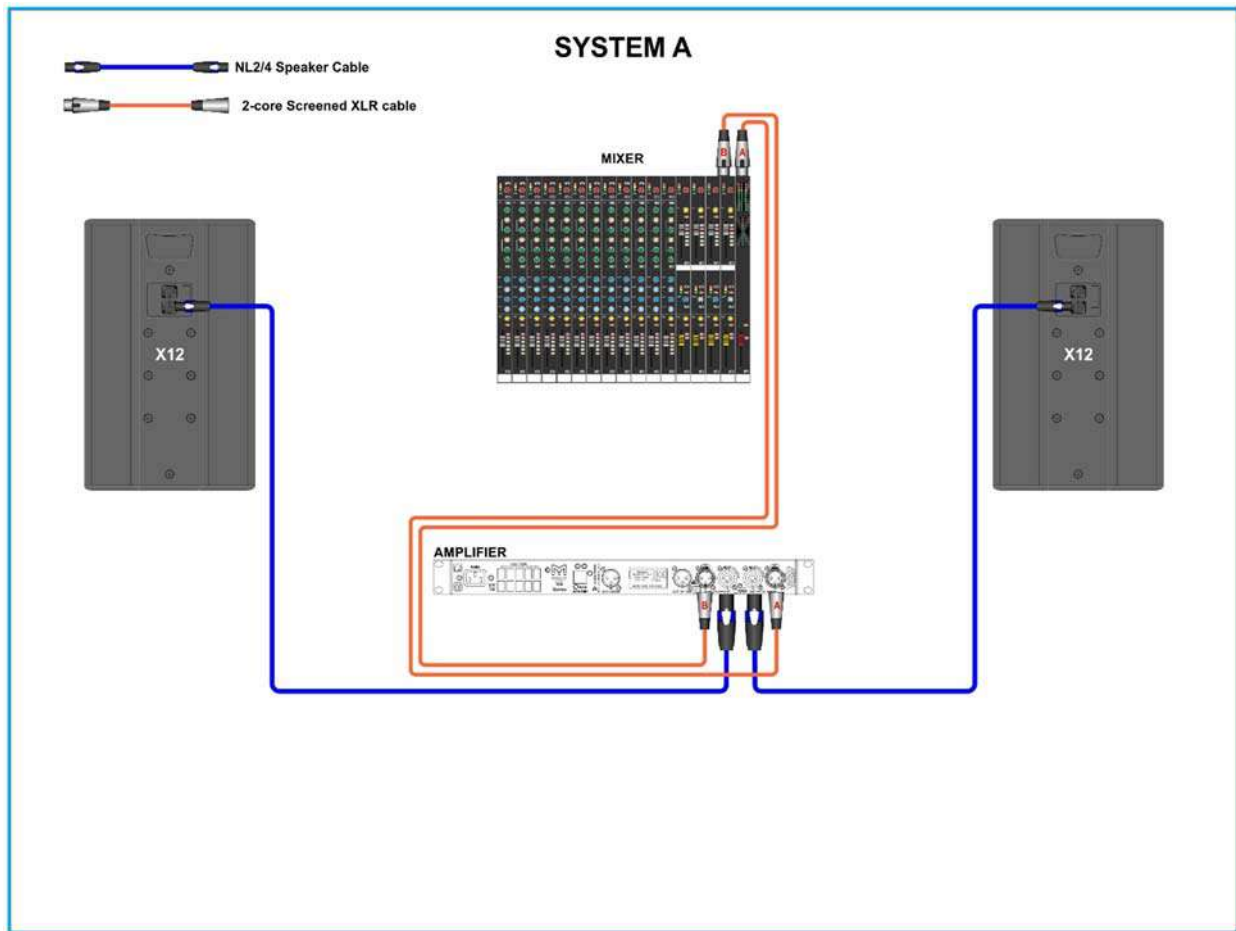
The Link-B output uses a standard Speakon NL4 to connect the X118 up to the X12 ensuring that the X12 gets its signal from the MA3.0 amplifier.

The diagram shows a custom cable which splits the 4-core cable at the amplifier end to route the two feeds into the single cable, this could however be achieved but using a patch panel with NL4 connectors which have independent connections from both amplifiers going to pints 1+/- and 2+/- thus enabling a standard 4-core Speakon cable to be used. This also makes it very neat when connecting the amplifier rack as all connections can be available on the patch panel at the front of the rack so you don't have to access the rear of the amplifiers.

Wiring Diagrams

There are several ways that BlacklineX systems can be configured so we will now look at some practical wiring examples for the most common system configurations. We have shown a limited range of speaker types but the same wiring can be used for other models which will be listed with an indication of the correct DX0.5 BlacklineX Preset to select

System A- basic set-up



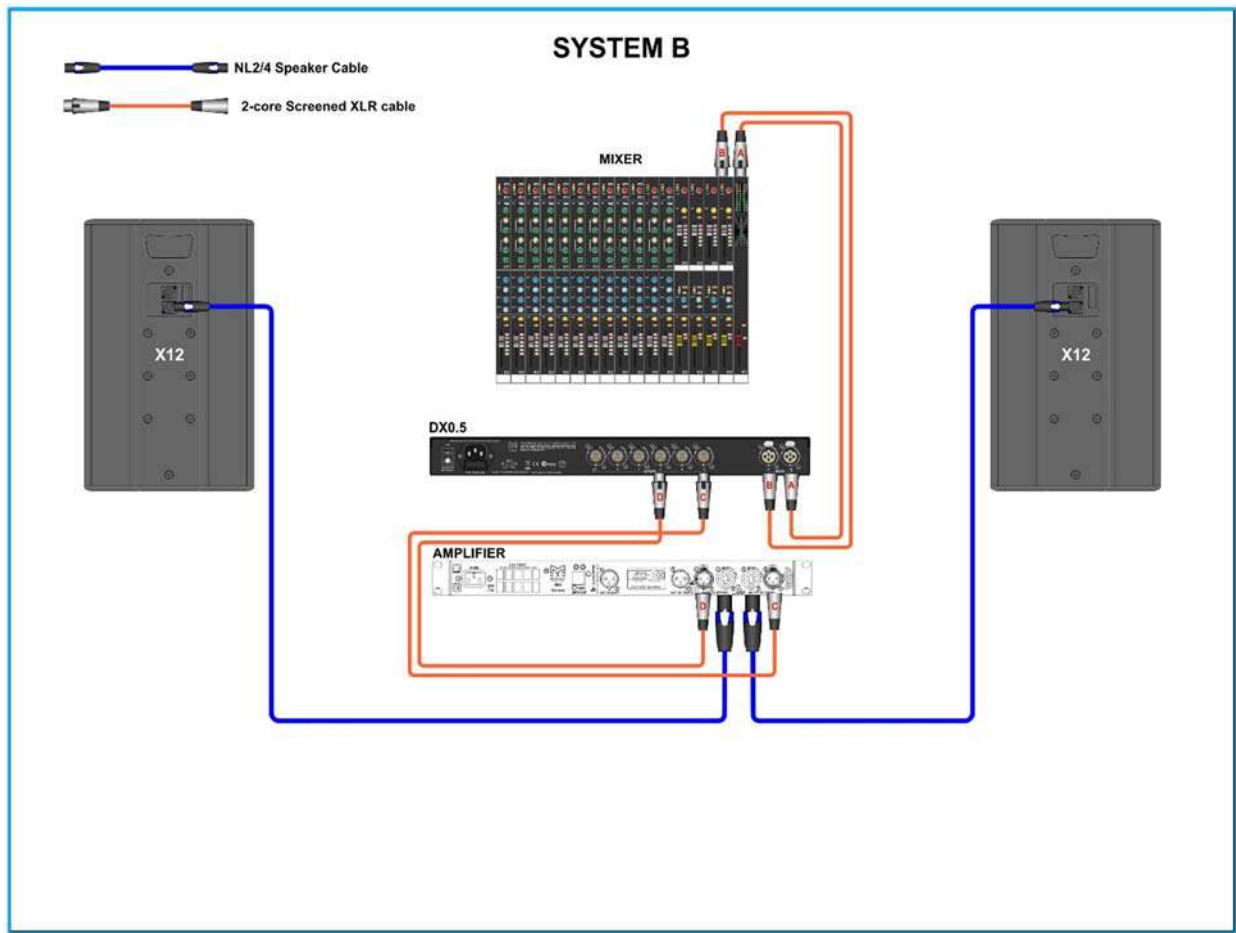
Products that may be used with this wiring;-

Blackline X8
Blackline X10
Blackline X12
Blackline X15

This is the most simple system set up, connecting from your source, often a mixer, straight to the amplifier using balanced XLR "microphone" cables. Then using Neutrik NL2 or NL4 Speakon speaker cables from the amplifier outputs to the BlacklineX speaker inputs.

See the chapter on amplifier selection to choose the most appropriate amplifier for use with the BlacklineX cabinet. Note that as there is no system processing or any description you will need to run the system carefully to avoid over-driving and potentially damaging the speaker. Listen for any distortion at high volume or the amplifier level indicators showing clipping and reduce the level from the mixer immediately.

System B- Introducing a Processor

***Products that may be used with this wiring:-***

Blackline X8	(DX0.5 Preset 1)
Blackline X10	(DX0.5 Preset 2)
Blackline X12	(DX0.5 Preset 9)
Blackline X15	(DX0.5 Preset 13)

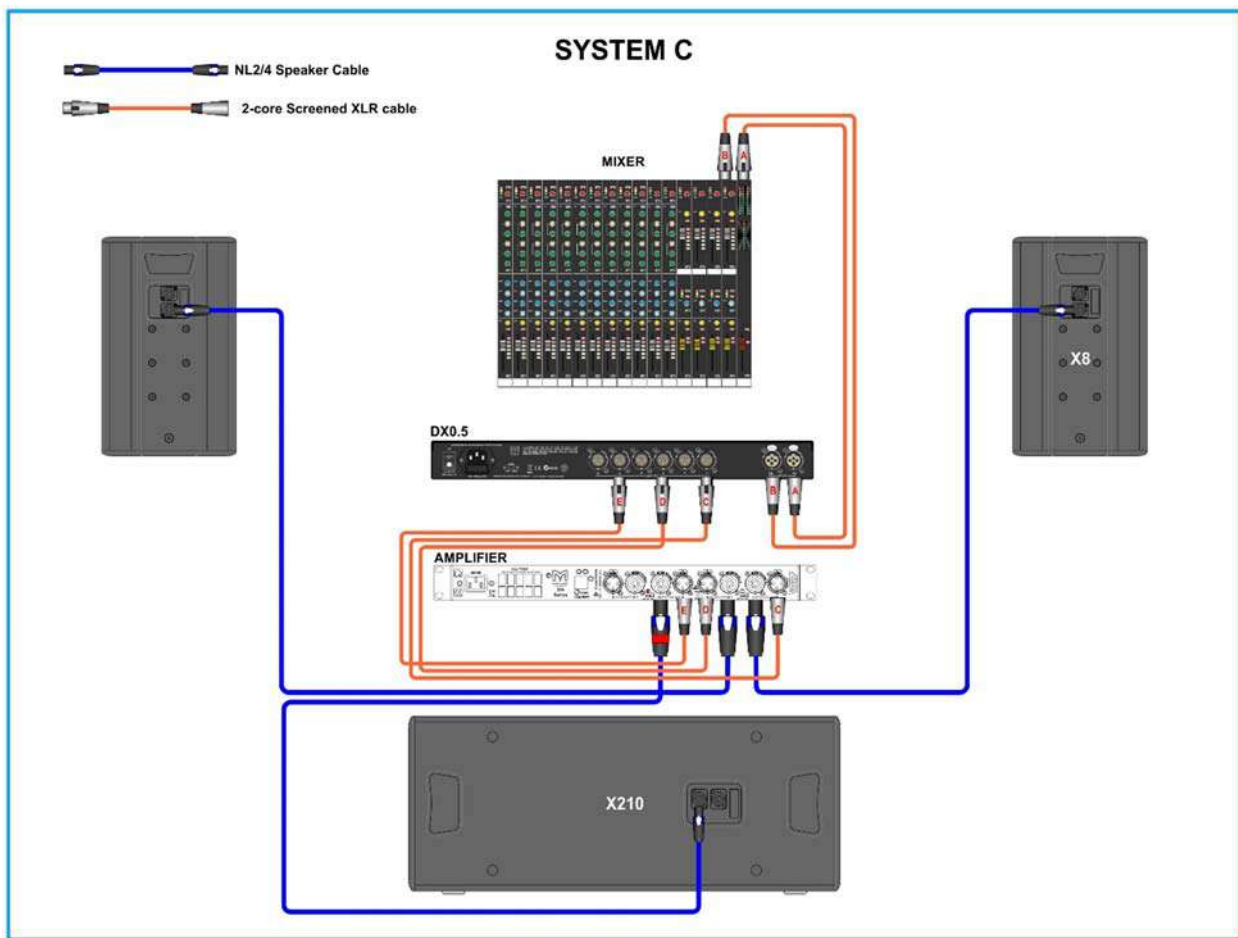
This system adds a digital processor in the signal chain between the mixer and amplifier for optimum performance from your BlacklineX system. The Martin Audio DX0.5 is the best option and a Project file with Presets for the Blackline X range may be uploaded and the preset indicated can be selected to run the system. A DX1.5 or DX2 may also be used or even a third party processor, parameters to program these are available in spreadsheet form on the Loudspeaker Settings page on the Martin Audio website.

As well as applying the recommended equalisation the processor adds a limiter in the final stage of processing to protect the system from being damaged by being over-driven.

The XLR feeds from the mixer go to the inputs of the DX0.5, the DX0.5 outputs shown should be connected to the amplifier inputs with another short pair of XLR cables. Two Speakon NL2 or NL4 speaker cables connect the amplifier outputs to the speakers.

You will also need to choose the best match of amplifier for the speakers, see the chapter on amplifier selection.

System C- Adding a Mono Sub



Products that may be used with this wiring:-

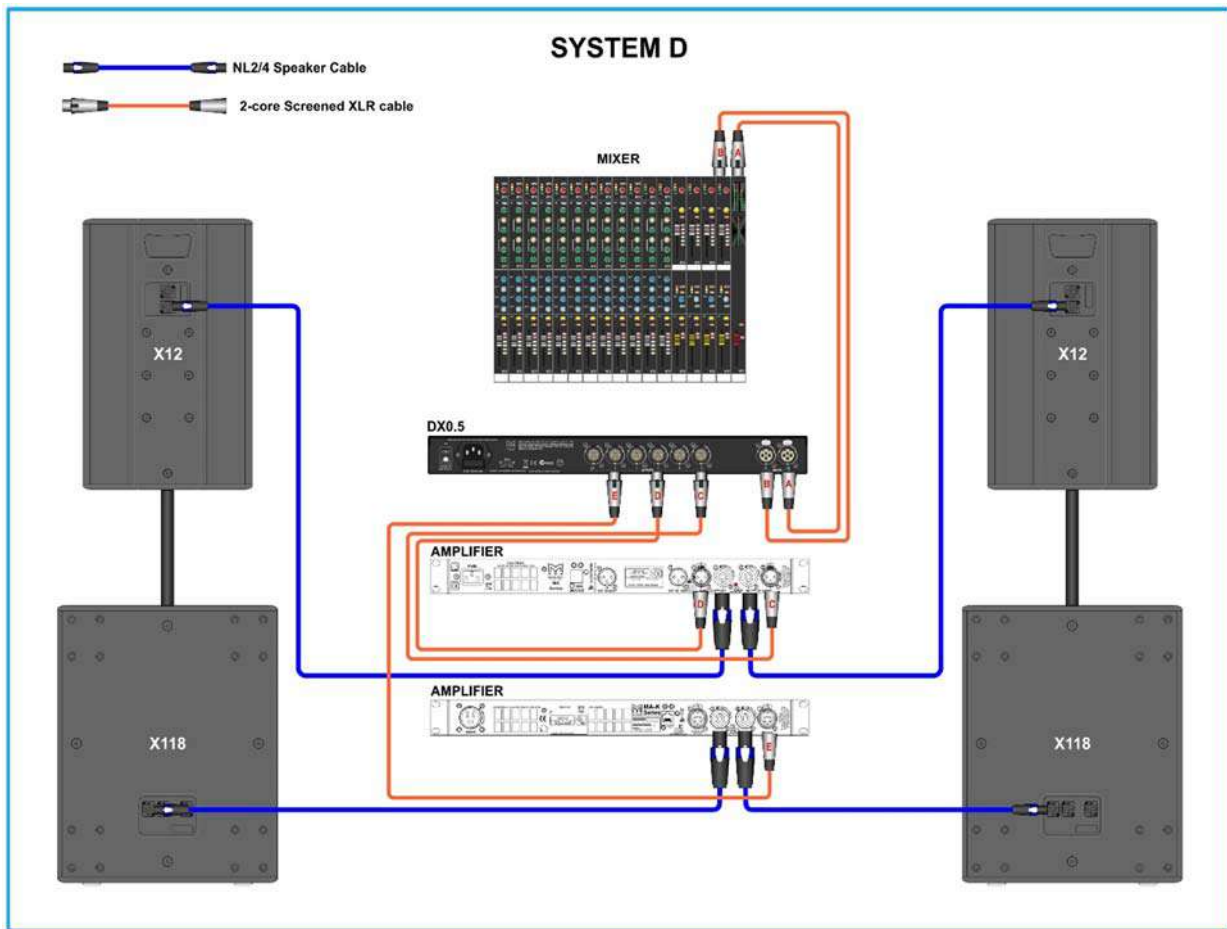
Blackline X8 plus X210	(DX0.5 Preset 2)	Recommended Amplifier MA2.8Q
Blackline X8 plus X115	(DX0.5 Preset 3)	Recommended Amplifier MA2.8Q
Blackline X8 plus X118	(DX0.5 Preset 4)	Recommended Amplifier MA5.0Q
Blackline X10 plus X210	(DX0.5 Preset 6)	Recommended Amplifier MA2.8Q
Blackline X10 plus X115	(DX0.5 Preset 7)	Recommended Amplifier MA2.8Q
Blackline X10 plus X118	(DX0.5 Preset 8)	Recommended Amplifier MA5.0Q
Blackline X12 plus X210	(DX0.5 Preset 10)	Recommended Amplifier MA5.0Q
Blackline X12 plus X115	(DX0.5 Preset 11)	Recommended Amplifier MA5.0Q
Blackline X12 plus X118	(DX0.5 Preset 12)	Recommended Amplifier MA5.0Q
Blackline X15 plus X210	(DX0.5 Preset 14)	Recommended Amplifier MA5.0Q
Blackline X15 plus X115	(DX0.5 Preset 15)	Recommended Amplifier MA5.0Q
Blackline X15 plus X118	(DX0.5 Preset 16)	Recommended Amplifier MA5.0Q

This system adds a single subwoofer and uses one of the Martin Audio four channel amplifiers for a neat solution avoiding having to add a second amplifier. Channels A and B drive the two full range cabinets and channel C&D are used in bridge mode.

As with the previous system, there are left and right connections from the mixer to the input of the DX0.5. Output Channels 1 and 3 on the DX0.5 connect to inputs A and B on the amplifier using a pair of short XLR cables. A final XLR cable is connected from output channel 5 on the DX0.5 to input C on the amplifier. The link switch for channels C & D must be depressed.

Speakon NL2 or NL4 cables go from the amplifier output channels A & B to the left and right full range speakers, and a Speakon NL4 speaker cable goes from amplifier output C to the Subwoofer. Note that the wiring in the NL4 connector at the amplifier must be on pins 2+/- for bridge mode operation. See the User Guides for the MA2.8Q and 5.0Q for details of bridge mode operation. These are available for download from the Martin Audio website.

System D- Adding Subwoofers with a second amplifier

*Products that may be used with this wiring;-*

Blackline X8 plus X210	(DX0.5 Preset 2)
Blackline X8 plus X115	(DX0.5 Preset 3)
Blackline X8 plus X118	(DX0.5 Preset 4)
Blackline X10 plus X210	(DX0.5 Preset 6)
Blackline X10 plus X115	(DX0.5 Preset 7)
Blackline X10 plus X118	(DX0.5 Preset 8)
Blackline X12 plus X210	(DX0.5 Preset 10)
Blackline X12 plus X115	(DX0.5 Preset 11)
Blackline X12 plus X118	(DX0.5 Preset 12)
Blackline X15 plus X210	(DX0.5 Preset 14)
Blackline X15 plus X115	(DX0.5 Preset 15)
Blackline X15 plus X118	(DX0.5 Preset 16)

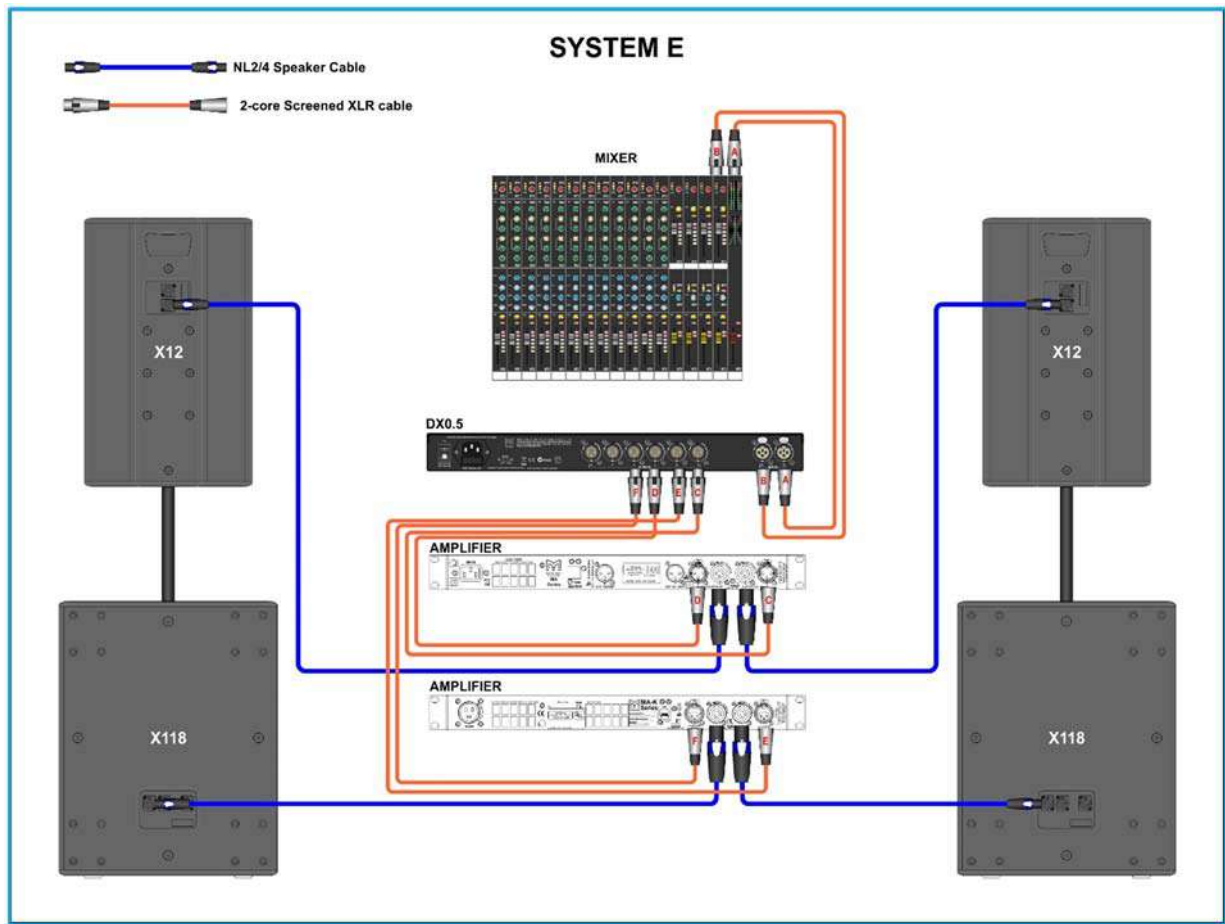
This system adds a pair of subwoofers which are run in mono using a second amplifier. This configuration allows the use of a dedicated high power amplifier for the subs to deliver the maximum output capability.

There are left and right connections from the mixer to the input of the DX0.5. Output Channels 1 and 3 on the DX0.5 connect to inputs A and B on the amplifier for the full range cabinet using a pair of short XLR cables. A final XLR cable is connected from output channel 5 on the DX0.5 to input A on the subwoofer amplifier. The link switch for channels A & B must be depressed on this amplifier.

Speakon NL2 or NL4 cables go from the first amplifier output channels A & B to the left and right full range speakers, and Speakon NL2 or NL4 speaker cables go from the subwoofer amplifier outputs A & B to the Subwoofer inputs.

You will also need to choose the best match of amplifier for the speakers, see the chapter on amplifier selection.

System E- Stereo Subwoofers



Products that may be used with this wiring:-

Blackline X8 plus X210	(DX0.5 Preset 2)
Blackline X8 plus X115	(DX0.5 Preset 3)
Blackline X8 plus X118	(DX0.5 Preset 4)
Blackline X10 plus X210	(DX0.5 Preset 6)
Blackline X10 plus X115	(DX0.5 Preset 7)
Blackline X10 plus X118	(DX0.5 Preset 8)
Blackline X12 plus X210	(DX0.5 Preset 10)
Blackline X12 plus X115	(DX0.5 Preset 11)
Blackline X12 plus X118	(DX0.5 Preset 12)
Blackline X15 plus X210	(DX0.5 Preset 14)
Blackline X15 plus X115	(DX0.5 Preset 15)
Blackline X15 plus X118	(DX0.5 Preset 16)

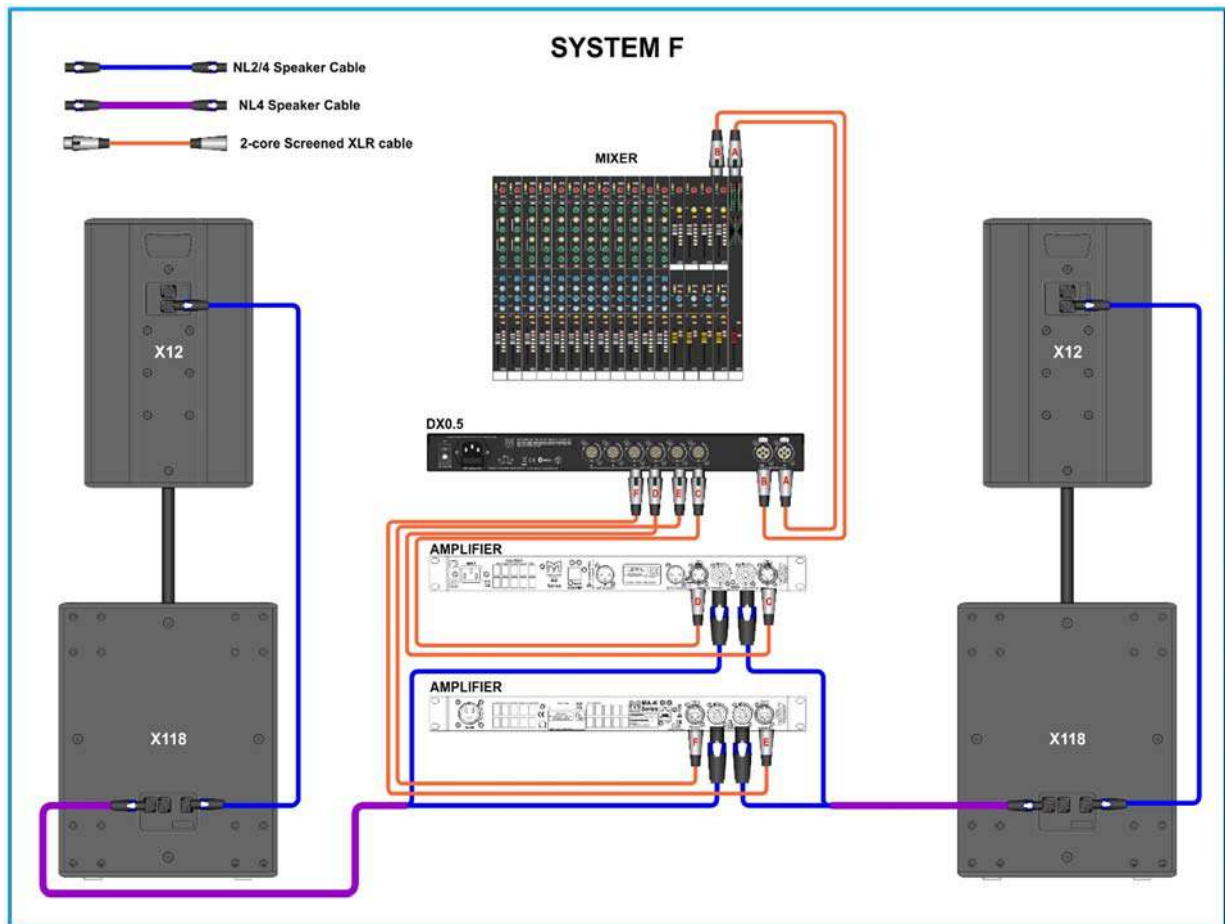
It is common to run subwoofers in mono as most low frequencies have very little stereo content, however in some circumstances you may wish to run subwoofers in stereo using this system. The configuration uses two amplifiers allowing a good match of amplifier to the power capability of the speakers and in particular using a higher power amplifier for the subs to deliver the maximum output capability.

There are left and right connections from the mixer to the input of the DX0.5. Output Channels 1 and 3 on the DX0.5 connect to inputs A and B on the amplifier for the full range cabinet using a pair of short XLR cables. Another pair of XLR cables are connected from output channels 2 & 4 on the DX0.5 to inputs A and B on the subwoofer amplifier.

Speakon NL2 or NL4 cables go from the first amplifier output channels A & B to the left and right full range speakers, and from the subwoofer amplifier outputs A & B to the Subwoofer inputs.

You will also need to choose the best match of amplifier for the speakers, see the chapter on amplifier selection.

System F – Stereo Subwoofers using the bi-amp wiring facility



Products that may be used with this wiring:-

Blackline X8 plus X115	(DX0.5 Preset 3)
Blackline X8 plus X118	(DX0.5 Preset 4)
Blackline X10 plus X115	(DX0.5 Preset 7)
Blackline X10 plus X118	(DX0.5 Preset 8)
Blackline X12 plus X115	(DX0.5 Preset 11)
Blackline X12 plus X118	(DX0.5 Preset 12)
Blackline X15 plus X115	(DX0.5 Preset 15)
Blackline X15 plus X118	(DX0.5 Preset 16)

This system is identical to System E but utilises the bi-amp output link B available on the Blackline X115 and X118 subwoofers. See the chapter on Connections for full details. This makes for a much neater system with a single cable running from the amplifier rack to each stack and a short cable linking the subwoofer to the full range cabinet.

All input connections from the DX0.5 to the amplifiers are identical to System E.

The output uses a custom 4-core cable. At the rack end the 4-cores are split to two pairs each terminated in a Speakon NL2 or NL4. These connect to the amplifier outputs, one for the sub feed and one for the full range cabinet feed. At the other end the cable is terminated in a Speakon NL4, pins 1+/- are fed from the subwoofer amplifier and 2+/- from the full range cabinet amplifier. These connect to the Subwoofer inputs

A short Speakon NL2 or NL4 cable runs from the Link B connections on the subs up to the inputs on the full range cabinets.

The system could be even neater with a custom patch panel in the amplifier rack with a cable from the subwoofer amplifier going to pins 1+/- on a panel mount NL4 socket with another cable from the full range amplifier going to pins 2+/- on the same connector. That way a standard Speakon NL4 to NL4 speaker cable can be used to connect from the amp rack to the speaker stacks.

DX0.5

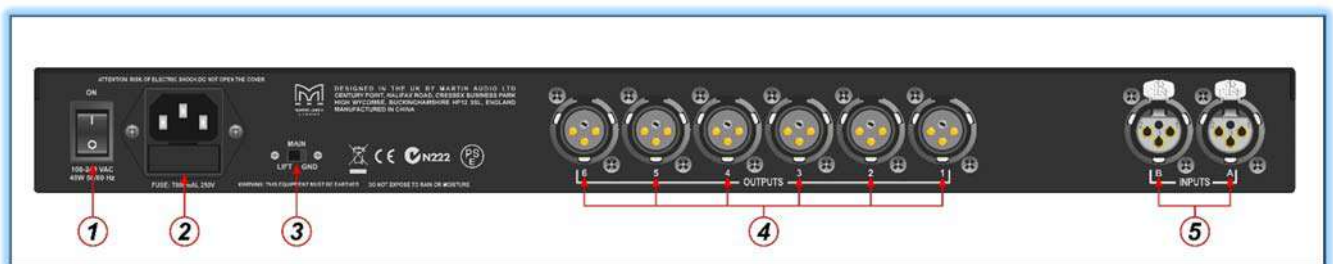
Introduction

Offering sophisticated EQ, crossover, dynamics processing and system protection, the Martin Audio DX0.5 Loudspeaker Management System provides complete system optimization for both passive and powered systems. Five different operating modes cover a wide range of systems. Each of the six outputs feature dedicated level control, mute, polarity invert, high / low-pass filters, 7-band parametric / shelving EQ, 600ms delay and limiting. Two input channels provide independent level control, mute, 600ms delay and a flexible 5-band parametric / shelving EQ. The convenient front-panel control also includes 7-segment LED metering per channel. The DX0.5 utilizes high-end 24-bit AKM® AD/DA converters with 120 dB dynamic range for class-leading sound quality. With 24 user-definable presets and flexible I/O for simple routing and configuration, the DX0.5 is an ultra-flexible processor, ideal for a wide range of portable and permanent applications.

Features

- Professional 2-input, 6-output system processor for passive and powered Loudspeaker systems
- Sophisticated, intuitive EQ, crossover, delay and dynamics processing optimizes and protects your system
- High-end 24-bit AKM® AD/DA with 120 dB dynamic range
- Two balanced XLR inputs with level control, mute, 600ms delay and 5-band parametric / shelving EQ
- Six balanced XLR outputs with level control, mute, polarity invert, dedicated high and low pass filters, 7-band parametric / shelving EQ, 600ms delay, and limiting
- Powerful limiter on every output for ultimate protection
- Convenient front-panel controls for parameter editing and input / output muting
- USB port for simple programming via PC
- Linkable inputs and outputs for easy stereo configuration
- 7-segment LED metering for input / output level or limiter activity
- 5 operating modes: 2 x stereo + sub, 3 x stereo, 2 x 2-way + sub, 2 x 3-way and 1 x 6-way
- 24 presets for storing Martin Audio BlacklineX or other system parameters
- Switch mode power supply: 100V – 240V
- Compact, single rack unit design system controller may also be used as a simple equaliser and limiter for fully passive full-range

Rear Panel



1. Power

Use this rocker-style switch to turn the unit on or off. The processor is on when the top of the switch is pressed in. It is off when the bottom of the switch is pressed in. The LCD Display [6] will illuminate and text will appear when the power switch is on.

The DX0.5 remembers its settings, so you may power cycle the unit and it will resume operation using the same settings as before. The DX0.5 employs relays on the outputs to prevent unwanted pops and noise in the system when power cycling and starting up the processor. After engaging the power switch, the unit will initialize and the relays will switch. Any live outputs will smoothly fade from silence to their configured output levels. The processor may now be edited, or it is ready for use if the DX0.5 is already configured for the loudspeaker system under control.

2. Power Lead Socket and Fuse

This is where to connect the detachable power cable included with the processor. Plug the other end of the power lead into an AC outlet. The outlet should match the power cable.

WARNING: Bypassing the plug's safety ground pin can be dangerous. Don't do it!

The fuse is located behind the fuse cover, at the bottom of the IEC socket. See the "Troubleshooting" section on page 22 for information about replacing the fuse.

3. Main: Lift / Gnd

The ground lift separates the chassis ground from the signal ground. The default position is GND. You may attempt to remedy system ground loop hum by moving the switch to LIFT.

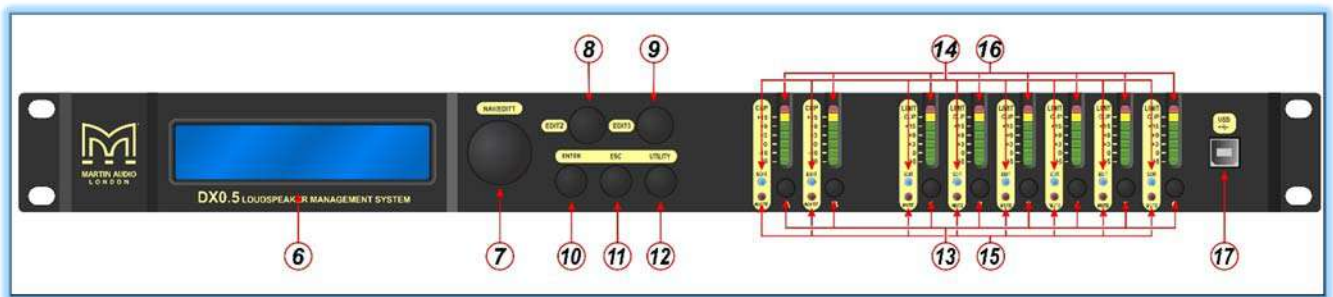
4. XLR Outputs

These six male XLR connectors provide a balanced line-level signal for each of the processor's output channels. Connect these to the inputs of power amplifiers and/or powered loudspeakers.

5. XLR Inputs

These female XLR connectors accept a balanced line-level input from a mixer or other source main L/R output.

Front Panel



6. LCD Display

The LCD Display is one of the most vital features of the processor. It displays processor information including (but not limited to) System, Preset and Security Utilities, gain, delay, EQ and other input and output processing parameters.

When the DX0.5 is powered up, the last state it was in will load up and the LCD Display will present the current system setup type:

- 2xStereo+Sub [default]
- 2x2Way+Sub
- 2x3Way
- 3xStereo
- 1x6Way

7. Nav/Edit1 Control

The Nav/Edit1 rotary encoder control allows you to navigate the user interface, edit sections of the processor, navigate within screens to select sub-menus, pages and parameters, as well as select values during editing.

8. Edit2 Control

The Edit2 rotary encoder control allows you to edit parameters, as well as select values during editing.

9. Edit3 Control

The Edit3 rotary encoder control also allows you to edit parameters, as well as select values during editing.

In general, use the Nav/Edit1 rotary encoder control to scroll through the various pages and configuration settings. Depending on the page, individual parameters may be changed by turning one (or more) of the encoders. In some cases, the Edit2 and Edit3 controls provide fine and course control of the same parameter.

10. Enter Button

The Enter Button allows you to dig deeper and deeper into menus and parameters, confirm operations and change settings.

11. ESC Button

The ESC Button allows you to retreat from selected variables. In some cases, it confirm operations and changes settings, as well. These will be noted.

12. Utility Button

Press this button to select and update the DX0.5's utilities. There are three main utilities menus:

- System Utilities
- Preset Utilities
- Security Utilities

Within each, an array of sub-menus are available.

13. Mute / Edit Buttons

These eight buttons serve a dual purpose:

- Muting selected inputs and outputs
- Editing selected inputs and outputs

To mute an input or output, quickly press and release the desired button once to engage mute; quickly press and release it again to un-mute. Mute as you might expect toggles between muted and unmuted on the corresponding inputs and outputs.

To edit an input or output, press and hold the desired button until that input or output's blue LED [14] illuminates. Press and hold again to take it out of edit mode. Edit allows you to edit – change – variables on the chosen inputs and outputs. While it is not possible to edit the inputs AND outputs simultaneously, it is possible to link and edit the inputs simultaneously OR link and edit any number of outputs simultaneously. Simply press and hold any additional input or output Mute / Edit buttons to link. Any changed parameters will affect all linked inputs or outputs.

14. Edit LEDs

There are a total of eight Edit LEDs on the DX0.5: two input and six output. Edit LEDs illuminate blue when engaged. See Mute / Edit Buttons [13].

15. Mute LEDs

There are a total of eight Mute LEDs on the DX0.5: two input and six output. Mute LEDs illuminate red when engaged. See Mute / Edit Buttons [13].

16. Meters

These seven-segment meters display the input and output signal levels OR the gain reduction amount for each output's limiter, depending on the selected VU Meter mode. Detailed information may be found on page 20 [VU Meter section].

These meters should remain green with the occasional peak into the yellow zone. If the level stays constantly in the yellow section (or any red clipping), lower the level of the source until feeding the DX0.5 until the metering returns to occasional excursions into the yellow. It may also be necessary to check the gain and EQ settings on the DX0.5 input and output channels.

Input meters (starting at the top) show:

Clip, +15 dBu, +9 dBu, +3 dBu, 0 dBu, -10 dBu and -20 dBu.

Output meters (starting at the top) show:

Limit, Clip, +15 dBu, +9 dBu, +3 dBu, 0 dBu and -15 dBu when in Level mode.

If the VU meter mode is Limit, the output meters show:

Limit, 0 dB, -3 dB, -6 dB, -9 dB, -12 dB and -15 dB.

17. USB

The DX0.5 may be controlled and programmed using a Windows-based PC. Go to www.MartinAudio.com/Software to download the free application and driver. Here you will also find presets for other Martin Audio product ranges

Simply connect a USB cable from the DX0.5 to the PC in order to control all parameters of the processor via the DX0.5 Application.

Factory Reset

It is possible to reset the DX0.5 Loudspeaker Management System to its factory settings. Please keep in mind that this erases all settings, including any passwords and presets that may have been set. Be sure to power down any amplifiers and/or powered speakers before resetting the DX0.5.

Simply press and hold the Enter [10], ESC [11] and Utility [12] buttons when powering up until the LCD

Display [6] shows:

Please Wait...

Memory Reset

Then you may take your fingers off the buttons. You will know it worked when the six output Mute LEDs [15] illuminate after the DX0.5 is fully powered up.

The default password is six zeroes: 000000

Utilities

As mentioned earlier, there are three main utility menus to choose from:

- System Utilities
- Preset Utilities
- Security Utilities

Within each utility menu, an array of sub-menus are available. We will go through each utility, each submenu, how to get there, how to edit and change settings and what each Control and button does in each situation.

When navigating menus, the current setting for any parameter will be indicated with an asterisk [*] making it easy to get back where you started.

Press the Utility Button [12] to open the Utility Menu.

Use the Nav/Edit1 Control [7] to navigate between the three utility menus: System Utilities, Preset Utilities and Security Utilities.

Press the ESC button [11] to return to the main screen.

Press the Enter Button [10] to enter and edit the selected Utilities menu. This is how we reach the sub-menus of the Utilities.

System Utilities

Turn the Nav/Edit1 Control until System Utilities is presented and press the Enter Button [10] to reach the System Utilities sub-menus as listed below:

- System Setup
- Delay Units
- Ramps on changes
- Software Version

Looking at each of these sub-menus individually;-

1. The Nav/Edit1 Control [7] is used to navigate between the four System Utilities.
2. The ESC button [11] is used to return to the System Utilities menu.

3. The Enter Button [10] is used to enter and edit the chosen System Utility.

Press the Enter Button [10] to enter System Setup.

System Setup

System Setup is where the processor is configured for your particular loudspeaker system. It configures channel names, input routing to outputs and provides starting points for crossover setups.

The five options are listed below. Here, turn the Edit2 [8] or Edit3 [9] Control to scroll between the different System Setup choices.

- 2xStereo+Sub [default]

Two full-range loudspeaker pairs and a pair of [mono by default] subwoofers

- 2x2Way+Sub

Two bi-amp full-range loudspeakers and a pair of [mono by default] subwoofers

- 2x3Way

Two tri-amp full-range loudspeakers

- 3xStereo

Three full-range loudspeaker pairs

- 1x6Way

Mono 6-way

Once you have decided on a system, press the Enter Button [10] twice: once to select and again to confirm. The outputs will automatically mute once updated and the processor returns to the System Setup splash screen.

You may configure the DX0.5 for other scenarios by adjusting the available parameters. If you are creating a custom setup, choose the setup that most closely resembles your system, then edit from there.

Press the ESC button [11] to return to the System Utility menu without making any changes.

Delay Units

This is where to choose units used when adjusting the input and output delay values. You will be presented with three options here:

- Unit : Time(ms)
- Unit : Distance(m) [default]
- Unit : Distance(feet)

Turn the Edit2 [8] or Edit3 [9] Control to scroll between these three choices. Press the Enter Button [10] once a unit of delay has been decided. The processor will return to the Delay Units splash screen. Or press the ESC button [11] to return to the System Utility menu without making any changes.

Ramps on changes

When engaged, sudden volume changes may be avoided when changing parameter values, particularly when using a Windows-based PC to control the unit. Disengage this feature for live applications since instant response to change is desired.

Turn the Edit2 [8] or Edit3 [9] Control to scroll between **Ramps : On** and **Ramps : OFF** [default]. If changing, press the Enter Button [10] only once here. The processor will return to the Ramps on changes splash screen. Or press the ESC button [11] to return to the System Utility menu without making any changes.

Software Version

Nothing may be edited on this page. Press the Enter Button [10] to view what version of software is installed in this DX0.5. Press the Enter [10] or ESC [11] Button to return to the Software Version splash screen.

Preset Utilities

This is where to save, recall and delete presets on the DX0.5. This is useful when the PA system has multiple setups for different environments or several loudspeaker systems utilizing varying setups.

Note: As mentioned earlier, the DX0.5 will load up the last state it was in when it was powered down.

As mentioned earlier, the way to get here from the main menu is by pressing the Utility Button [12]. Once inside the Utility Menu, scroll the Nav/Edit1 Control [7] clockwise to Preset Utilities. Now press the Enter Button [10] again to reach the sub-menus as listed below:

- Recall a Preset
- Save a Preset
- Delete a Preset

Looking at each of these sub-menus individually;-

1. The Nav/Edit1 Control [7] is used to navigate between the three Preset Utilities.
2. The ESC button [11] is used to return to the Preset Utilities menu.
3. The Enter Button [10] is used to enter and edit the chosen Preset Utility.

Press the Enter Button [10] to enter Recall a Preset.

Recall a Preset

If a preset has been saved earlier, it may be recalled here. If no presets are stored in the unit, the processor will return to the Recall a Preset splash screen.

If presets are available, turn the Edit2 [8] or Edit3 [9] Control to select which preset to recall. Press the Enter Button [10] to select a preset and again to confirm recall. The preset will load and the processor will return to the Recall a Preset splash screen.

Save a Preset

Once your desired system settings have been programmed in, save it to the DX0.5 for recall later. Turn the Edit2 [8] or Edit3 [9] Control to scroll between presets 1 – 24. Press the Enter Button [10] once you decide the location in which you wish to save the preset.

Next you are able to name the preset. The Nav/Edit1 Control [7] moves the cursor left and right while the Edit2 [8] and Edit3 [9] Controls change the text. The text available scrolls through the following characters;-

	!	"	#	\$	%	&	'	(	)	*	+	,	-	/	0	1	2	3	4	5	6	7	8
9	:	:	<	=	>	?	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_	`	a	b	c	d	e	f	g	h
i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{		}	→	←	

Once satisfied with the results, press the Enter Button [10] twice: once to select and again to confirm. The processor will return to the Save a Preset splash screen.

It is possible to save over an existing preset. If attempted, you will need to confirm by pressing the Enter Button [10] again. Or press the ESC Button [11] to return to the Preset Utilities menu without overwriting the preset.

Delete a Preset

If a preset is no longer needed for recall, it may be deleted here. It will help to keep the DX0.5's memory clutter-free. Turn the Edit2 [8] or Edit3 [9] Control to scroll between presets 1 – 24. Press the Enter Button [10] once you have selected the preset to delete. Press the Enter Button [10] twice: once to select and again to confirm. The processor will return to the Delete a Preset splash screen.

Security Utilities

This is where to lock the DX0.5 to prevent anyone from accidentally (or intentionally) changing the settings. You also have control over some of the system behaviour after it's been locked.

As discussed earlier, the way to get here from the main menu is by pressing the Utility Button [12]. Once inside the Utility Menu, scroll the Nav/Edit1 Control [7] clockwise to Security Utilities. Now press the Enter Button [10] again to reach the sub-menus as listed below.

- Show Parameter
- Lock Unit
- User Password
- Enable Password

1. The Nav/Edit1 Control [7] is used to navigate between the four Security Utilities.
2. The ESC button [11] is used to return to the Security Utilities menu.
3. The Enter Button [10] is used to enter and edit the chosen Security Utility.

Press the Enter Button [10] to enter Show Parameter.

Show Parameter

Once a DX0.5 has been locked, you have the option of allowing the various processing parameter values to be shown or not. Turn the Edit2 [8] or Edit3 [9] Control to scroll between **Parameter will be shown** [default] and **Parameter will not be shown**. If changing, press the Enter Button [10] only once here. The processor will return to the Show Parameter splash screen.

Lock Unit

Locking a DX0.5 prevents accidental changes to its settings.

Turn the Edit2 [8] or Edit3 [9] Control to scroll between **Lock : OFF** [default] and **Lock : On**. If changing, press the Enter Button [10] only once here.

When locked, a symbol resembling a key will appear in the lower-right hand area of the LCD Display [6]. Pressing the Utility Button [12] here returns you directly to the Lock Unit splash screen.

When unlocked, the key symbol disappears and the processor will return to the Security Utilities splash screen.

User Password

For the ultimate protection from accidental and intentional parameter adjustments, set up a user password here. Only those with the password will be allowed access to edit processor settings.

The Nav/Edit1 Control [7] moves the cursor left and right while the Edit2 [8] and Edit3 [9] Controls change the text.

In order to change the password, the current password needs to be entered. The default / factory password is: 000000

Enter the current password and press the Enter Button [10]. It will now prompt you for a new password. Use as few as one (and up to a maximum of six) characters, using any combination of letters, numbers and symbols. Enter a new password and press the Enter Button [10]. It will now prompt you to confirm the new password. Enter it and press the Enter Button again to confirm. The processor will return to the User Password splash screen.

If the entered password is wrong, the splash screen will display **Password Wrong!** and the processor will return to the User Password splash screen without changing the password.

The password has been updated, but it is still disabled. This leads us to the fourth – and final – sub-menu:

Enable Password

Here is where the user password is enabled. The Nav/Edit1 Control [7] moves the cursor left and right while the Edit2 [8] and Edit3 [9] Controls change the text.

Enter the correct password and press the Enter Button [10]. Turn the Edit2 [8] or Edit3 [9] Control to scroll between **Password : Disable** [default] and **Password : Enable**. If changing, press the Enter Button [10] only once here.

When enabling, a symbol resembling a padlock will appear in the lower-right area of the LCD Display [6]. Pressing the Utility Button [12] here returns you directly to the User Password splash screen.

When disabling, the padlock symbol disappears and the processor will return to the Security Utilities splash screen.

The password will need to be entered to make any changes once the DX0.5 has been locked and password enabled. Therefore, make a note of the password and keep it somewhere safe. If the password is lost, you will have to perform a factory reset to restore the unit's default settings [see page 13].

Editing

Each input and output has an assortment of powerful parameters used to optimize the loudspeaker system. Changes made in editing mode occur in real time.

To edit an input or output, press and hold the desired Edit Button [13] until that input or outputs blue LED [14] illuminates. Press and hold again to take it out of edit mode.

Inputs A / B:

Engaging Edit on Input A, Input B, or both simultaneously allows you the opportunity to edit the following:

- Gain
 - Delay
 - EQ Bypass
 - 5-Band EQ
1. The Nav/Edit1 Control [7] is used to navigate between Gain, Delay, EQ Bypass and 5-Band EQ. The DX0.5 recalls where you are, so scroll the Nav/Edit1 Control [7] until you see the parameter you want to edit.
 2. The ESC button [11] is used to disengage Editing and return to the previous menu.
 3. The Enter Button [10] is used to enter and edit the chosen feature.

Press the Enter Button [10] to enter the currently selected input processing parameter. An arrow → will appear next to whatever setting is ready to be edited: Gain, Delay, EQ Bypass or EQ Bands 1 – 5.

Gain

The input gain allows you to adjust the entire system levels up and down. This is where to compensate for variations in the signal level of the program material from your signal source

Press the Enter button [10] to enter and edit the gain. An arrow → will appear next to **Gain** indicating that it is ready to be edited.

Use the Edit2 [8] or Edit3 [9] Controls to change the gain by ± 0.1 dB per click. Turning these Controls clockwise increases gain, while turning them anticlockwise decreases gain. The gain ranges from -15.0 dB to $+15.0$ dB.

Press the ESC button [11] to exit the gain editing mode.

Delay

Setting up input delays on the DX0.5 is useful for time aligning components of a system either to each other or to the live instruments or both.

Press the Enter button [10] to enter and edit the delay. An arrow → will appear next to **Delay** indicating that it is ready to be edited.

As stated on page 14, Delay may be represented in one of three ways:

- Time(ms), or
- Distance(m) [default], or
- Distance(feet)

Use the Edit2 Control [8] to change the delay by:

- ± 1.000 ms per click, or
- ± 0.340 m per click, or
- ± 1.115 feet per click

Use the Edit3 Control [9] to make fine adjustments.

The Edit3 Control changes the delay by:

- ± 0.0208 ms per click, or
- ± 0.007 m per click, or
- ± 0.023 feet per click

Turning these Controls clockwise increases the delay time, while turning them anticlockwise decreases the delay time.

The minimum and maximum delay ranges from:

- 0.0000 ms – 600.9984 ms
- 0.000 m – 204.339 m
- 0.000 feet – 670.233 feet

Press the ESC button [11] to disengage Editing.

EQ Bypass

EQ Bypass flattens the 5-Band EQ on the input so you may hear exactly how it is affecting the system. By toggling the EQ Bypass on and off, you may quickly compare the sound with and without EQ.

Turn the Edit2 [8] or Edit3 [9] Control to scroll between **Bypass = OFF** [default] and **Bypass = On**.

Press the ESC button [11] to accept the new EQ Bypass mode and exit the EQ Bypass editing mode.

5-Band EQ

Editing input EQ on the DX0.5 is useful for adjusting the response of the entire PA, particularly when correcting anomalies caused by venue acoustics. It is standard practice to use the input EQ for this function leaving the output EQ for any cabinet EQ recommended by the system manufacturer.

Press the Enter button [10] to enter and edit the EQ bands. An arrow  will appear next to **EQ** indicating that it is ready to be edited.

Use the Nav/Edit1 [7] Control to change the frequency by $\pm 1/24$ octave per click. Turning this control clockwise increases the frequency, while turning it anti-clockwise decreases the frequency. The frequency ranges from 20.0 Hz to 20.0 kHz.

Use the Edit2 [8] Control to change the Q factor (bandwidth) by ± 0.05 per click. Turning this Control clockwise increases the Q factor, while turning it anticlockwise decreases the Q. The EQ band may be configured as high or low shelf by turning it all the way anti-clockwise.

These are the EQ choices from the furthest anticlockwise option to the furthest clockwise option:

- -12 High Shelving
- -6 High Shelving
- -12 Low Shelving
- -6 Low Shelving
- 0.05 – 3.00 [Parametric]

To change the EQ between shelving and parametric, the gain must first be set to 0.0 dB.

Use the Edit3 [9] Control to change the gain by ± 0.5 dB per click. Turning this control clockwise increases the gain, while turning it anti-clockwise decreases the gain. The gain ranges from -15.0 dB to +15.0 dB.

Press the ESC button [11] to exit the EQ editing mode.

Outputs 1-6:

Engaging Edit on Output(s) 1-6 allows you to edit the following:

- Name
- Source
- Polarity
- Gain
- EQ Bypass
- 7-Band EQ
- Delay
- High Pass Filter
- Low Pass Filter
- Limiter
- VU Meter

1. The Nav/Edit1 Control [7] is used to navigate between Name, Source, Polarity, Gain, EQ Bypass, 7-Band EQ, Delay, High Pass Filter, Low Pass Filter, Limiter and the VU Meter.
2. The ESC button [11] is used to disengage Editing and return to the previous menu.

Press the Enter Button [10] to enter Name. An arrow → will appear next to **Name** indicating that it is ready to be edited.

The aforementioned arrow → will appear next to whatever setting is ready to be edited: Name, Source, Polarity, Gain, EQ Bypass, 7-Band EQ, Delay, High Pass Filter, Low Pass Filter, Limiter and the VU Meter.

Name

Here is where the name of the selected output(s) may be changed. The Nav/Edit1 Control [7] moves the cursor left and right while the Edit2 [8] and Edit3 [9] Controls change the text.

Press the Enter button [10] to accept the new name and return to the Edit menu. Pressing the ESC button leaves the name unchanged and returns you to the output edit menu.

Source

There are three input sources to choose between:

- InA = Input A
- InB = Input B
- InA+InB = A mono sum of Input A + Input B

If you are running a stereo system, choose either Input A or Input B. If the system is mono (or has a mono component such as a subwoofer or a single loudspeaker mounted in a venue's lobby, for example), select the Input A + Input B choice.

Use the Edit2 [8] or Edit3 [9] Control to change between these three options.

Press the ESC button [11] to exit input source editing mode.

Polarity

Polarity inversion is often helpful in improving phase alignment throughout the loudspeaker system, whether used separately or with a small amount of delay. For example, if you have issues with a subwoofer performance, invert the polarity to see if the sub level gets higher or lower.

Turn the Edit2 [8] or Edit3 [9] Control to scroll between **Polarity = Normal** [default] and **Polarity = Invert** [180°].

Press the ESC button [11] to exit polarity edit mode.

Gain

In most cases you may need to adjust the output levels differently to properly balance the system components for ideal performance.

Use the Edit2 [8] or Edit3 [9] Control to change the gain by ± 0.1 dB per click. Turning these Controls clockwise increases gain, while turning them anti-clockwise decreases gain. The gain ranges from -12.0 dB to $+6.0$ dB.

Press the ESC button [11] to exit gain editing mode.

EQ Bypass

EQ Bypass flattens the 7-Band EQ on the output so you may hear exactly how it is affecting the system. By toggling the EQ Bypass on and off, you may quickly compare the sound with and without EQ.

Turn the Edit2 [8] or Edit3 [9] Control to scroll between **Bypass = OFF** [default] and **Bypass = On**.

Press the ESC button [11] to accept the new EQ Bypass mode and exit the EQ Bypass editing mode.

7-Band EQ

Output EQ is used primarily for adjusting the response of a particular loudspeaker or transducer. Additionally, output EQ may be used to correct room anomalies in multi-room setups.

Use the Nav/Edit1 [7] Control to change the frequency. Turning this Control clockwise increases the frequency, while turning it anti-clockwise decreases the frequency. The frequency ranges from 20.0 Hz to 20.0 kHz.

Use the Edit2 [8] Control to change the bandwidth by ± 0.05 per click. Turning this Control clockwise increases the bandwidth, while turning it anticlockwise decreases the bandwidth. The EQ band may be configured as high or low shelf by turning it all the way anti-clockwise.

These are the EQ choices from the furthest anticlockwise option to the furthest clockwise option:

- -12 High Shelving
- -6 High Shelving
- -12 Low Shelving
- -6 Low Shelving
- $0.05 - 3.00$ [Parametric]

To change the EQ between shelving and parametric, the gain must first be set to 0.0 dB.

Use the Edit3 [9] Control to change the gain by ± 0.5 dB per click. Turning this Control clockwise increases the gain, while turning it anti-clockwise decreases the gain. The gain ranges from -15.0 dB to $+15.0$ dB.

Press the ESC button [11] to exit the EQ editing mode.

Delay

Setting up output delays on the DX0.5 is useful for time and phase aligning transducers in bi- and tri-amplified loudspeakers systems, aligning subwoofers to full-range loudspeakers, aligning delay systems to mains on stage, and more.

As stated on page 14, Delay may be presented in one of three ways:

- Time(ms), or
- Distance(m) [default], or
- Distance(feet)

Use the Edit2 Control [8] to change the delay by:

- ± 1.000 ms per click, or
- ± 0.340 m per click, or
- ± 1.115 feet per click

Use the Edit3 Control [9] to change the delay by:

- ± 0.0208 ms per click, or
- ± 0.007 m per click, or
- ± 0.023 feet per click

Turning these Controls clockwise increases the delay time, while turning them anti-clockwise decreases the delay time.

The minimum and maximum delay ranges from:

- 0.0000 ms – 600.9984 ms
- 0.000 m – 204.339 m
- 0.000 feet – 670.233 feet

Press the ESC button [11] to exit delay editing mode.

High Pass Filter

High Pass Filters are utilized to set up crossovers in multi-way loudspeaker and subwoofer systems. They may also be used to roll-off low frequencies that full-range loudspeakers cannot efficiently reproduce.

Use the Edit2 [8] Control to change the frequency. Turning this control clockwise increases the frequency, while turning it anti-clockwise decreases the frequency. The frequency ranges from 20.0 Hz to 20.0 kHz.

Turn the Edit3 [9] Control to see the various filter type and slope options:

- No Cut-Off
- Butterworth 6 dB
- Butterworth 12 dB
- Linkwitz-Riley 12 dB
- Bessel 12 dB
- Butterworth 18 dB
- Butterworth 24 dB
- Linkwitz-Riley 24 dB
- Bessel 24 dB

Press the ESC button [11] to exit this edit mode.

Low Pass Filter

In conjunction with high pass filters, low pass filters are utilized to set up crossovers in multi-way loudspeaker and subwoofer systems. For example, in a 3-way stereo system, use the high and low pass filters on the output feeding the mid-range transducer to define the range of frequencies it will reproduce. Combined with high and low pass filters on the outputs to the low and high frequency transducers, you may divide the frequency spectrum so each transducer is reproducing the range for which it is best suited, making the system sound its best and operate most efficiently.

Use the Edit2 [8] Control to change the frequency. Turning this control clockwise increases the frequency, while turning it anti-clockwise decreases the frequency. The frequency ranges from 20.0 Hz to 20.0 kHz.

Turn the Edit3 [9] Control to see the various filter type and slope options:

- No Cut-Off
- Butterworth 6 dB
- Butterworth 12 dB
- Linkwitz-Riley 12 dB
- Bessel 12 dB
- Butterworth 18 dB
- Butterworth 24 dB
- Linkwitz-Riley 24 dB
- Bessel 24 dB

Press the ESC button [11] to exit this edit mode.

Limiters

Each output has a powerful limiter that may be used to protect loudspeakers from damage due to excessive output levels from the mixer. Limiter parameters are published for all Martin Audio systems on our website and whilst we accept that personal preference may mean that other parameters may be changed from our published figures- EQ changed for personal preference for example- we would strongly recommend that the recommended limiter parameters are always used to maintain reliable operation for many years.

Three Limiter controls may be edited:

- Attack
- Release
- Threshold

Use the Nav/Edit1 Control [7] to change the attack time. Turning this Control clockwise increases the attack time, while turning it anti-clockwise decreases the attack time. The attack time ranges from 5ms to 200ms.

The attack time increment depends on where it is currently set:

- 5 ms – 20 ms: ± 1 ms per click
- 20 ms – 30 ms: ± 5 ms per click
- 30 ms – 100 ms: ± 10 ms per click
- 100 ms – 200 ms: ± 20 ms per click

Use the Edit2 Control [8] to change the release time by ± 0.1 s per click. Turning this control clockwise increases the release time, while turning it anti-clockwise decreases the release time. The release time ranges from 0.1 s to 3.0 s.

Use the Edit3 Control [9] to change the threshold by ± 0.2 dBu per click. Turning this Control clockwise increases the threshold, while turning it anticlockwise decreases the threshold. The threshold ranges from -10.0 dBu to $+20.0$ dBu. A setting of $+20.0$ dBu is off.

Press the ESC button [11] to exit limiter editing mode.

VU Meter

You may choose between viewing the signal level or the limiter's gain reduction for each output. These will be displayed on the 7-segment LED meters [16].

Turn the Edit2 [8] or Edit3 [9] Control to scroll between **VU-Meter = Level** [default] and **VU-Meter = Limiter Act.** If the latter is selected, the Clip LED on the selected output(s) will illuminate to indicate 0 dB of gain reduction. When the signal level exceeds the limiter threshold, the top Limit LED will illuminate to indicate gain reduction is occurring. Additional LEDs will illuminate for every 3 dB of gain reduction.

Press the ESC button [11] to accept the update and exit VU Meter edit mode.

Linking Inputs or Outputs

It is possible to link multiple inputs or outputs and edit specific parameters simultaneously. This is useful if you want to set the gain on both inputs to $+1.0$ dB, for example. Or you could introduce a 3 dB cut at 250 Hz on EQ band 3 on output channels 1-4. This saves valuable time rather than having to make the same change on each input or output and of course is more accurate. The changes are absolute, not relative, so if you want different values for the same parameter across other inputs or outputs, you need to make these changes on each input or output. To link, simply press and hold any additional input or output Mute / Edit buttons. Any changed parameters will affect all linked inputs or outputs.

Control Application

The DX0.5 can be controlled from a PC running the DX0.5 Application which is available as a free download from the Martin Audio website. The application uses the USB connection to connect and enables a much easier way of editing the system configuration compared to using the front panel menus. The DX0.5 is NOT shipped pre-loaded with BlacklineX parameters but they are available as a project file to be uploaded to the DX0.5 internal preset library using the control application. For full details please download the DX0.5 User Guide on the DX0.5 Product Page on the Martin Audio website.

Grille Removal and horn Rotation

The BlacklineX Full range cabinets may be used in "landscape" or horizontal orientation, most obviously when used as a monitor wedge but also when flown in fixed installations. For the speaker to perform correctly it is necessary to rotate the horn flare through 90° to preserve the horizontal and vertical dispersion. The speakers are designed to make this as straightforward as possible with spring-loaded grilles which are easily removed and horns screwed in place with Pozidrive screws. It is also possible to rotate the Martin Audio badge on the grille.

Grille Removal

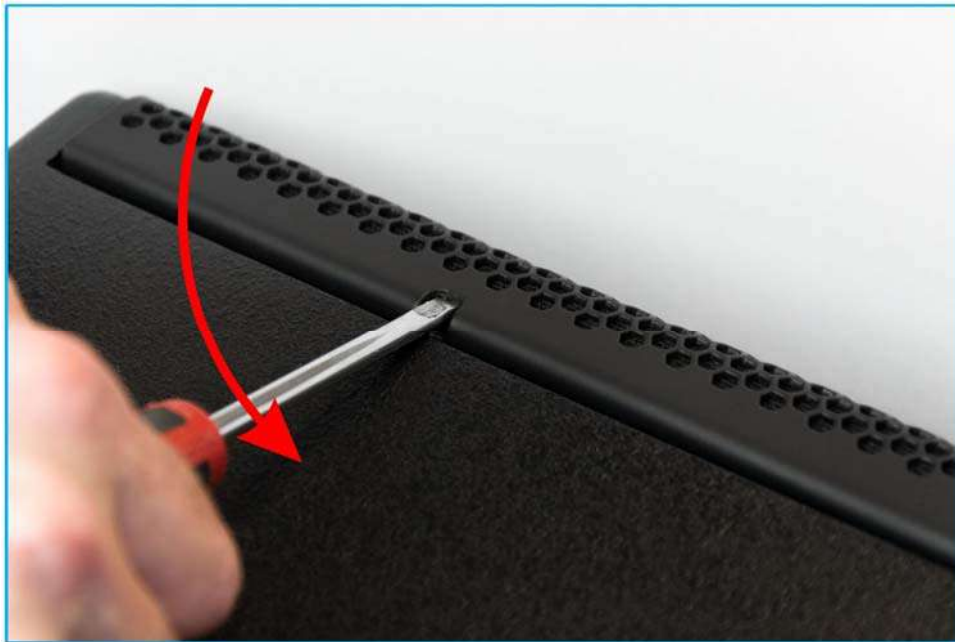
Grilles on BlacklineX cabinets are designed to be easy to remove to facilitate driver rotation. No screws are used to hold them in place; they are manufactured with a natural spring which holds them in place in slots in each side of the cabinets. The grilles have two or three gaps in the sides into which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



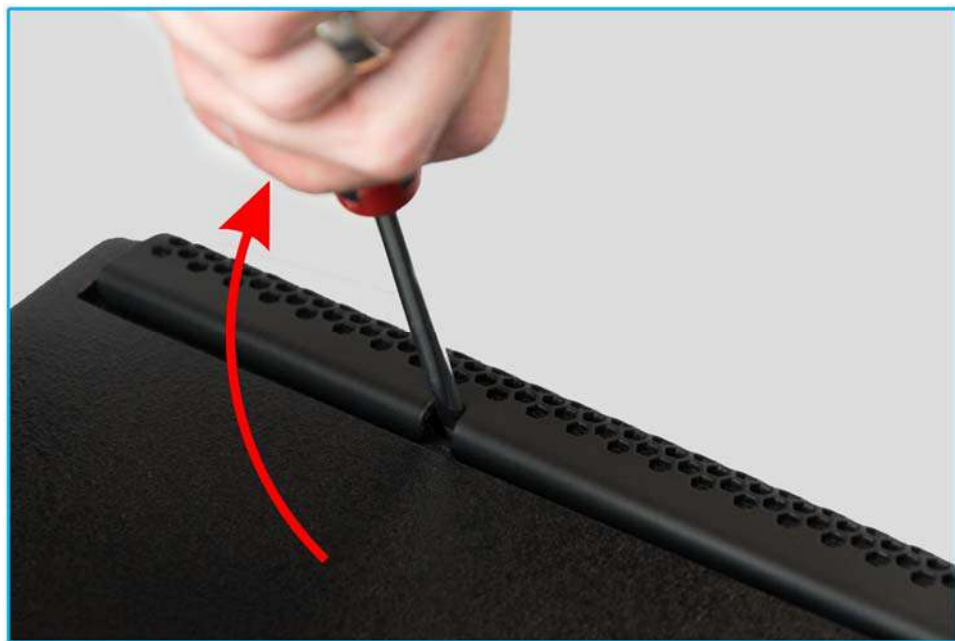
Insert the screwdriver blade into one of the gaps - either at the top or bottom of the cabinet.



Gently push the handle down. This will ease the grille out of the slot, it may have bitten into the paint surface so you just need to make sure it is free to be lifted clear.



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:

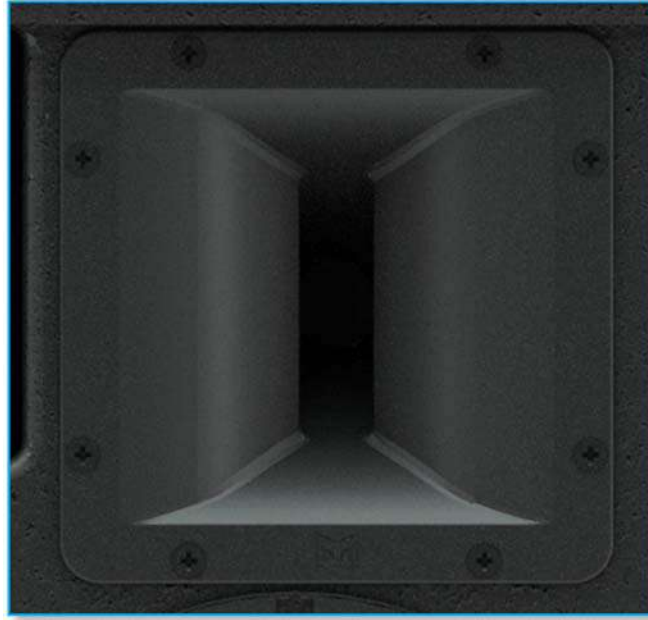


Repeat this process for the remaining gaps in the grille to ease it out of the slot all the way up one side of the cabinet; when you get to the final gap the grille should pop out and away from the front of the cabinet.

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.

Rotating the high frequency horn

The compression driver and horn assembly on all full range models are held into the cabinet using eight Pozidrive No.2 screws. Once the grille is removed these are easily seen on the flange of the horn. All models are essentially identical with just a larger horn flare on the bigger cabinets.



When using the cabinet in horizontal or "landscape" mode, unscrew all 8 screws placing them somewhere where they won't get lost. Carefully lift the horn assembly forward. There is no need to lift it completely out of the cabinet, just enough to allow you to rotate it. Turn it through 90° in either direction, line up the holes in the flange with those in the cabinet and replace all eight screws. Be careful not to over-tighten and cross-thread the screws in the cabinet baffle, it is only wood so doesn't need to be too tight.

Badge Rotation

When used in Landscape you may wish to rotate the Martin Audio badge on the grill so the speakers look like it is supposed to be operated in that orientation. The badge is spring loaded and very easy to rotate and can only be turned in fixed 90° increments so you will have no problem making sure that it is straight.



The badge is easier to rotate if the grille is first removed. With the grille removed push the spigot holding the badge in place so the badge is protruding forward from the grille and is proud of the recess in which it sits. Rotate the badge as required and release the spigot on the rear so it settles back into the recess in the grille.





The grille can then be replaced.

The badge is supplied with a plastic film to protect it from scratches. This should be left in position until the cabinet is fitted in position in a fixed installation, or is ready for use in portable applications when it can be peeled off and discarded.

Wall Mounting

BlacklineX8, 10, 12 and 15 may be wall mounted either in portrait or landscape modes the wall brackets which are also compatible with the CDD installation range. The Blackline X8 uses part number WB6/8B and Blackline X10, 12 and 15 uses part number WB10/12B;-



Do not forget that it is important to rotate the horn and badge through 90° when using a BlacklineX cabinet 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.

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, 8Kg for the X8, 14Kg for the X10, 17Kg for the X12 and 24Kg for the X15.



Next step is to attach the cabinet section of the bracket to the Blackline. 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



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.



Once the bracket is hooked together and taking the weight of the cabinet you can replace the lower bolt.



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 (CDDWB8/6) or an M6 hex key (CDDWB10/12) 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.

Eye Bolt Mounting

All BlacklineX systems have threaded inserts rated for flown installations. All BlacklineX Full Range enclosures have M8 threaded inserts and all BlacklineX Subs have M10 inserts. Most commonly these are used in conjunction with shouldered eye bolts for suspending the cabinets using appropriately rated chain or steel wire. Martin Audio's HTK00003 (M8) and HTK00004 (M10) are rated for use in flown applications. Note that if you plan to use alternative eye bolts these must be shouldered cast steel NOT formed steel types commonly available from DIY stores. They must have a safe working load rating compatible with the weight of the cabinets.



The CDD Live enclosures can be flown in 'Portrait' or 'landscape' format, note that the driver must be rotated when the cabinet is used in landscape mode, please see the chapter on grille removal and driver rotation.

We recommend using a minimum of four eye bolts with which to suspend the cabinet irrespective of which orientation is used. In most applications two eye bolts are used as the primary support left and right. A third attaches to the rear of the cabinet and is used to adjust the down-tilt of the cabinet as required. The fourth eye bolt is used to attach a secondary safety line which should be attached to a secure mounting point which is independent of the primary flying point- round a girder or similar.



Specifications

X8

TYPE	Ultra-compact, passive two-way system
FREQUENCY RESPONSE (5)	70Hz – 20kHz ± 3 dB, -10dB @ 50Hz
DRIVER	LF: 8" (200mm)/2" (50mm) voice coil, ferrite motor system HF: 1" (25mm) exit/1" (38mm) voice coil, polyimide dome compression driver
RATED POWER (2)	200W AES, 800W peak
RECOMMENDED AMPLIFIER	MA2.8Q, MA2.0
SENSITIVITY (8)	92dB
MAXIMUM SPL (9)	115dB continuous, 121dB peak
NOMINAL IMPEDANCE	8 ohms
DISPERSION (-6dB)	90° H x 50° V (user-rotatable)
CROSSOVER	2.9kHz passive
ENCLOSURE	Multi-angle birch/poplar ply
FINISH	Black textured paint
PROTECTIVE GRILLE	Black perforated steel with scrim cloth backing
CONNECTORS	2 x NL4 type
PIN CONNECTIONS (INPUT)	1+/1-
PIN CONNECTIONS (LINK)	1+/- to 1+/-
FITTINGS	13 x M8, 6 x M6 inserts, pole-mount socket, 1 x pocket handle
DIMENSIONS	(W) 257mm x (H) 422mm x (D) 243mm (W) 10.1ins x (H) 16.6ins x (D) 9.6ins
WEIGHT	8kg (17.6lbs)
ACCESSORIES	Wall bracket, eyebolts

X10

TYPE	Compact, passive two-way system
FREQUENCY RESPONSE (5)	65Hz-20kHz ± 3 dB, -10dB @ 55Hz
DRIVERS	LF: 10" (250mm)/2.5" (63.5mm) voice coil ferrite motor system HF: 1" (25mm) exit/1.4" (35mm) voice coil, polyimide dome compression driver
RATED POWER (2)	250W AES, 1000W peak
RECOMMENDED AMPLIFIER	MA2.0
SENSITIVITY (8)	94dB
MAXIMUM SPL (9)	118dB continuous, 124dB peak
NOMINAL IMPEDANCE	8 ohms
DISPERSION (-6dB)	90° H x 50° V (user-rotatable)
CROSSOVER	2.4kHz passive
ENCLOSURE	Multi-angle birch/poplar ply
FINISH	Black textured paint
PROTECTIVE GRILLE	Black perforated steel with scrim cloth backing
CONNECTORS	2 x NL4 type
PIN CONNECTIONS (INPUT)	1+/1-
PIN CONNECTIONS (LINK)	1+/- to 1+/-
FITTINGS	19 x M8 inserts, pole-mount socket, 1 x bar handle
DIMENSIONS	(W) 324mm x (H) 522mm x (D) 289mm (W) 12.8ins x (H) 20.6ins x (D) 11.4ins
WEIGHT	14kg (30.9lbs)
ACCESSORIES	Wall bracket, eyebolts

X12

TYPE	Compact, passive two-way system
FREQUENCY RESPONSE (5)	62Hz-20kHz $\pm$ 3dB, -10dB @ 50Hz
DRIVERS	LF: 12" (300mm)/2.5" (63.5mm) voice coil, ferrite motor system HF: 1" (25mm) exit/1.7" (44mm) voice coil, polyimide dome compression driver
RATED POWER (2)	300W AES, 1200W peak
RECOMMENDED AMPLIFIER	MA2.0, MA3.0, MA5.0Q
SENSITIVITY (8)	97dB
MAXIMUM SPL (9)	122dB continuous, 128dB peak
NOMINAL IMPEDANCE	8 ohms
DISPERSION (-6dB)	80° H x 50° V (user-rotatable)
CROSSOVER	2.3kHz passive
ENCLOSURE	Multi-angle birch/poplar ply
FINISH	Black textured paint
PROTECTIVE GRILLE	Black perforated steel with scrim cloth backing
FITTINGS	Top hat for pole mounting
CONNECTORS	2 x NL4 type
PIN CONNECTIONS (INPUT)	1+/1-
PIN CONNECTIONS (LINK)	1+/- to 1+/-
FITTINGS	20 x M8 inserts, pole-mount socket, 1 x bar handle
DIMENSIONS	(W) 358mm x (H) 574mm x (D) 337mm (W) 14.1ins x (H) 22.6ins x (D) 13.7ins
WEIGHT	17kg (37.5lbs)
ACCESSORIES	Wall bracket, eyebolts

X15

TYPE	High-power, passive two-way system
FREQUENCY RESPONSE (5)	55Hz-20kHz $\pm$ 3dB, -10dB @ 45Hz
DRIVERS	LF: 15" (380mm)/3" (75mm) voice coil, ferrite motor system HF: 1" (25mm) exit/1.7" (44mm) voice coil, polyimide dome compression driver
RATED POWER (2)	400W AES, 1600W peak
RECOMMENDED AMPLIFIER	MA3.0, MA5.0Q
SENSITIVITY (8)	99dB
MAXIMUM SPL (9)	125dB continuous, 131dB peak
NOMINAL IMPEDANCE	8 ohms
DISPERSION (-6dB)	90° H x 50° V (user-rotatable)
CROSSOVER	2.2kHz passive
ENCLOSURE	Multi-angle birch/poplar ply
FINISH	Black textured paint
PROTECTIVE GRILLE	Black perforated steel with scrim cloth backing
CONNECTORS	2 x NL4 type
PIN CONNECTIONS (INPUT)	1+/1-
PIN CONNECTIONS (LINK)	1+/- to 1+/-
FITTINGS	19 x M8 inserts, pole-mount socket, 2 x bar handle
DIMENSIONS	(W) 427mm x (H) 690mm x (D) 419mm (W) 16.8ins x (H) 27.2ins x (D) 16.5ins
WEIGHT	24kg (52.9lbs)
ACCESSORIES	Wall bracket, eyebolts

X115

TYPE	Compact, direct radiating subwoofer
FREQUENCY RESPONSE (5)	45Hz-150Hz $\pm$ 3dB, -10dB @ 40Hz
DRIVER	15" (380mm)/3" (75mm) voice coil, long excursion, ferrite magnet
RATED POWER (2)	500W AES, 2000W peak
RECOMMENDED AMPLIFIER	MA3.0, MA5.0Q
SENSITIVITY (8)	102dB
MAXIMUM SPL (9)	129dB continuous, 135dB peak (half space)
NOMINAL IMPEDANCE	8 ohms
DISPERSION (-6dB)	Omnidirectional
CROSSOVER	80-120Hz active
ENCLOSURE	Birch/poplar ply
FINISH	Black textured paint
PROTECTIVE GRILLE	Black perforated steel
CONNECTORS	3 x NL4 type
PIN CONNECTIONS (INPUT)	1+/1-
PIN CONNECTIONS (LINK)	A: 1+/- to 1+/-, B: 2+/- to 1+/-
FITTINGS	16 x M10 inserts, pole-mount socket, 2 x bar handles, provision for castors
DIMENSIONS	(W) 465mm x (H) 590mm x (D) 565mm (W) 18.3ins x (H) 23.2ins x (D) 22.2ins
WEIGHT	27kg (59.5lbs)

X118

TYPE	Compact, direct radiating subwoofer
FREQUENCY RESPONSE (5)	42Hz-150Hz $\pm$ 3dB, -10dB @ 38Hz
DRIVER	18" (460mm)/3" (75mm) voice coil, long excursion, ferrite magnet
RATED POWER (2)	500W AES, 2000W peak
RECOMMENDED AMPLIFIER	MA3.0, MA5.0Q
SENSITIVITY (8)	104dB
MAXIMUM SPL (9)	131dB continuous, 137dB peak (half space)
NOMINAL IMPEDANCE	8 ohms
DISPERSION (-6dB)	Omnidirectional
CROSSOVER	80-120Hz active
ENCLOSURE	Birch/poplar ply
FINISH	Black textured paint
PROTECTIVE GRILLE	Black perforated steel
CONNECTORS	3 x NL4 type
PIN CONNECTIONS (INPUT)	1+/1-
PIN CONNECTIONS (LINK)	A: 1+/- to 1+/-, B: 2+/- to 1+/-
FITTINGS	16 x M10 inserts, pole-mount socket, 2 x bar handles, provision for castors
DIMENSIONS	(W) 530mm x (H) 669mm x (D) 640mm (W) 20.9ins x (H) 26.3ins x (D) 25.2ins
WEIGHT	33kg (72.7lbs)

X210

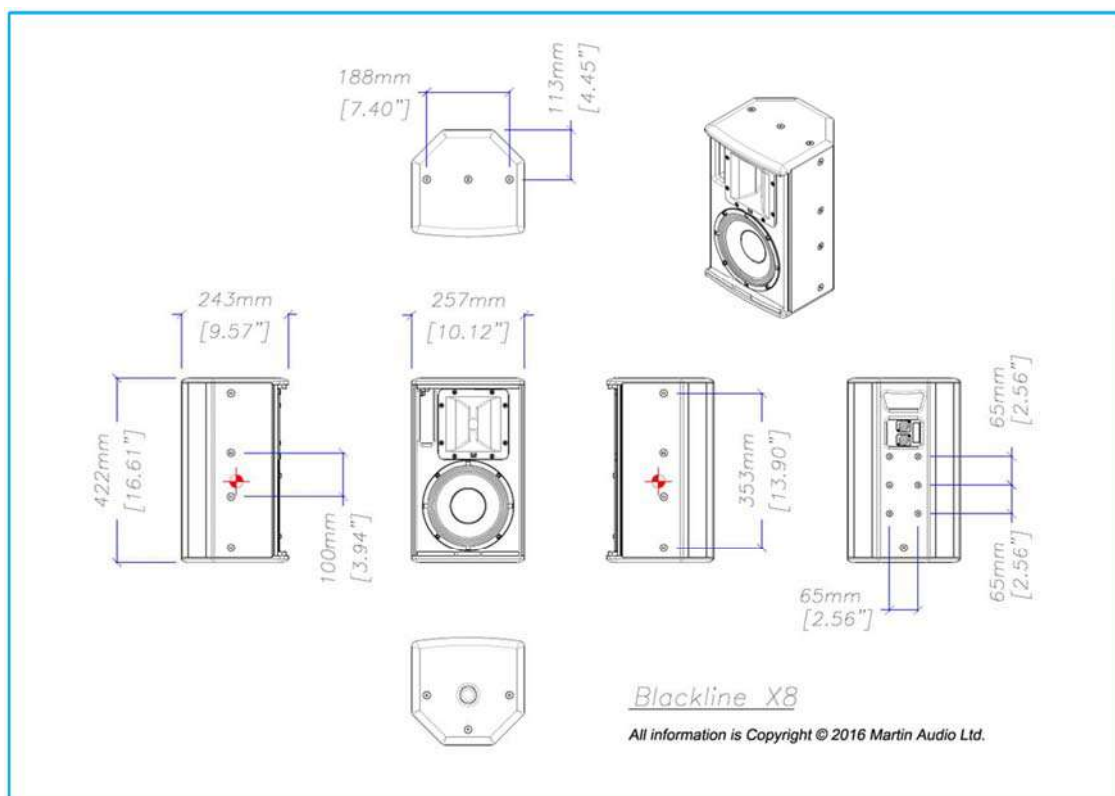
TYPE	Slimline, direct radiating subwoofer
FREQUENCY RESPONSE (5)	50Hz-150Hz $\pm$ 3dB, -10dB @ 42Hz
DRIVER	2 x 10" (250mm)/2" (50mm) voice coil, long excursion, ferrite magnet
RATED POWER (2)	500W AES, 2000W peak
RECOMMENDED AMPLIFIER	MA2.0, MA5.0Q
SENSITIVITY (8)	103dB
MAXIMUM SPL (9)	127dB continuous, 133dB peak (half space)
NOMINAL IMPEDANCE	4 ohms
DISPERSION (-6dB)	Omnidirectional
CROSSOVER	80-120Hz active
ENCLOSURE	Birch/poplar ply
FINISH	Black textured paint
PROTECTIVE GRILLE	Black perforated steel
CONNECTORS	2 x NL4 type
PIN CONNECTIONS (INPUT)	1+/-
PIN CONNECTIONS (LINK)	1+/- to 1+/-
FITTINGS	16 x M10 inserts, pole-mount socket, 2 x bar handles
DIMENSIONS	(W) 720mm x (H) 295mm x (D) 465mm (W) 28.3ins x (H) 11.6ins x (D) 18.3ins
WEIGHT	20kg (44.1lbs)

Notes

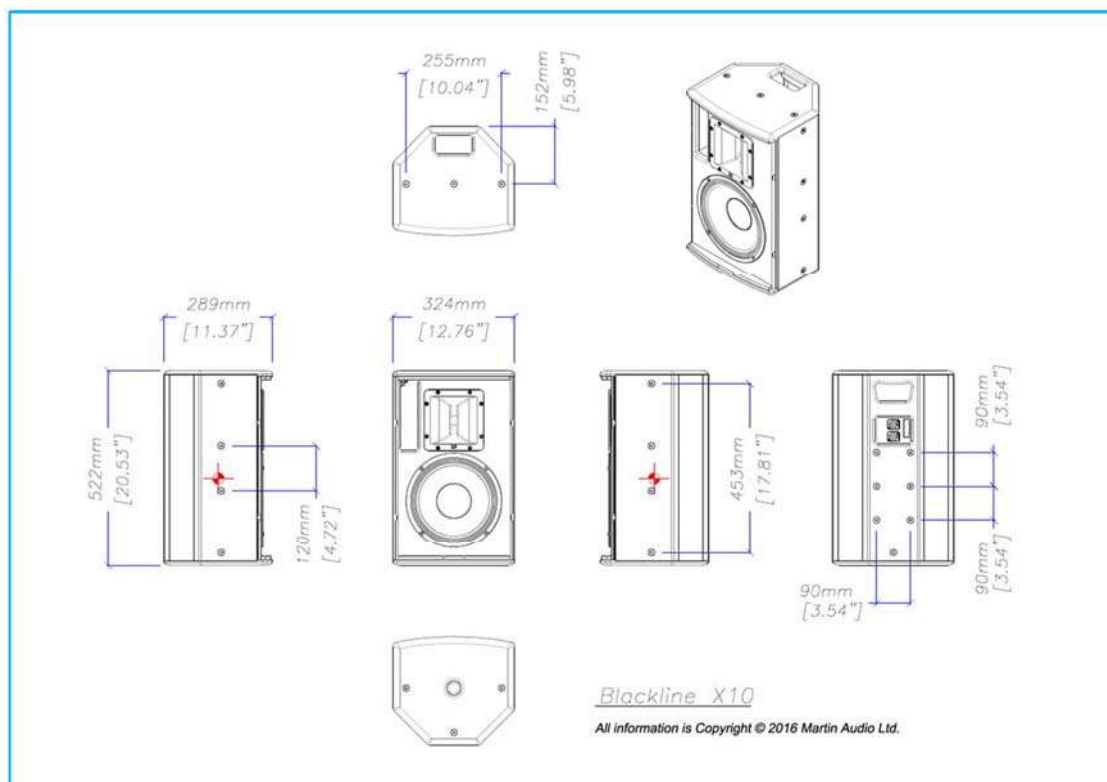
- (1) Measured on-axis in half (2pi) space at 2 metres, then referred to 1 metre.
- (2) AES Standard ANSI S4.26-1984.
- (3) Measured in half (2pi) space at 2 metres with 1 watt input, using band limited pink noise, then referred to 1 metre.
- (4) Measured in half (2pi) space at 2 metres using band limited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

Technical Drawings

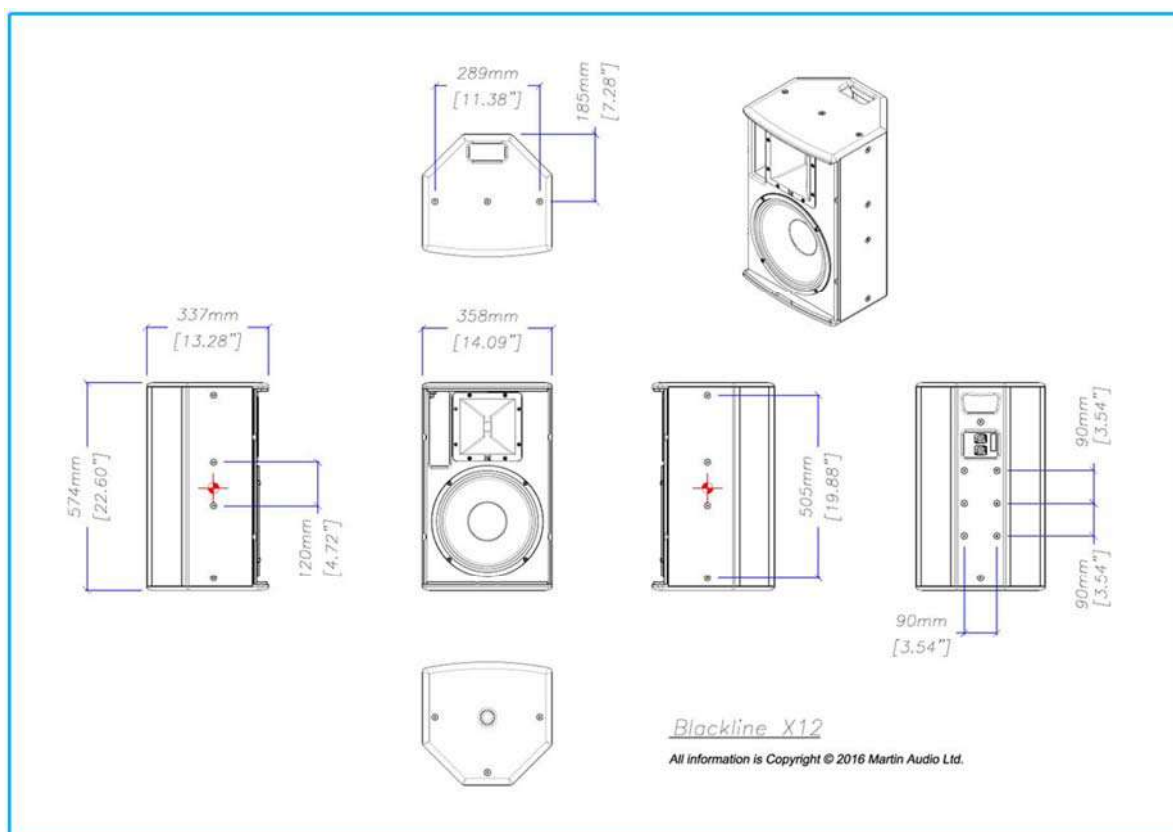
X8



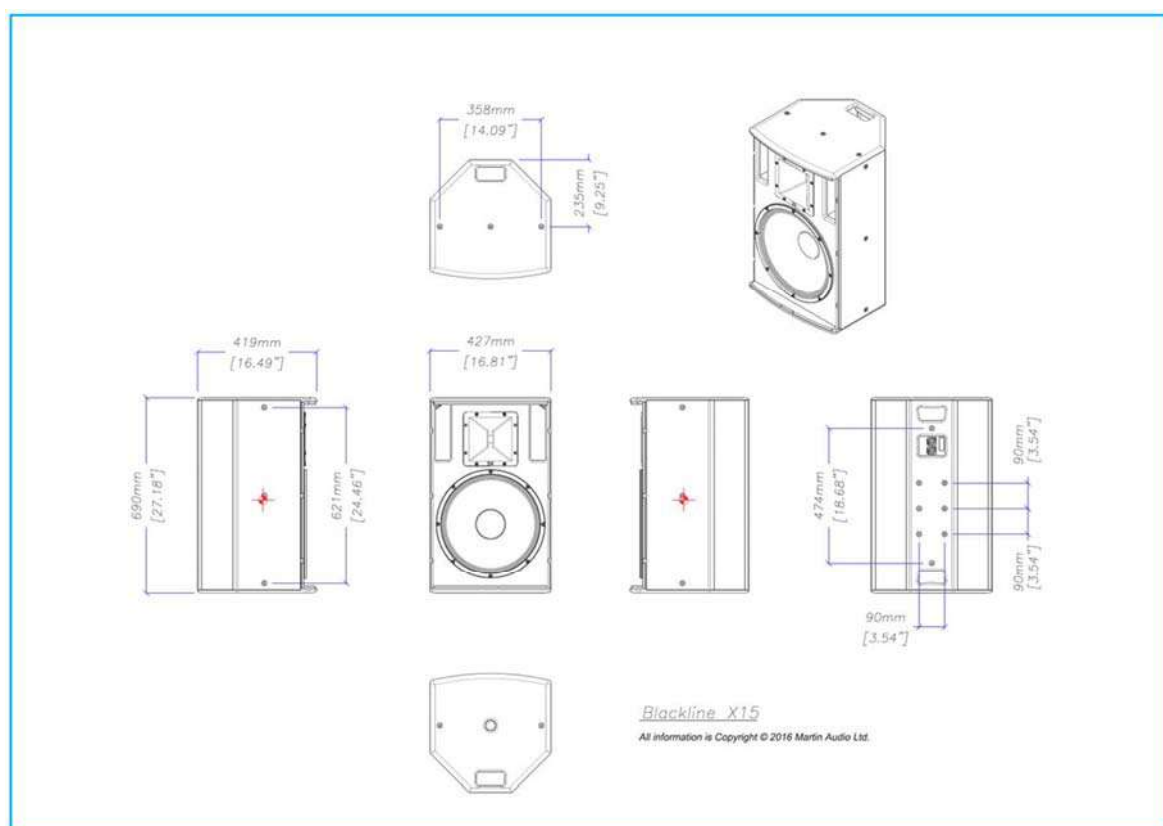
X10



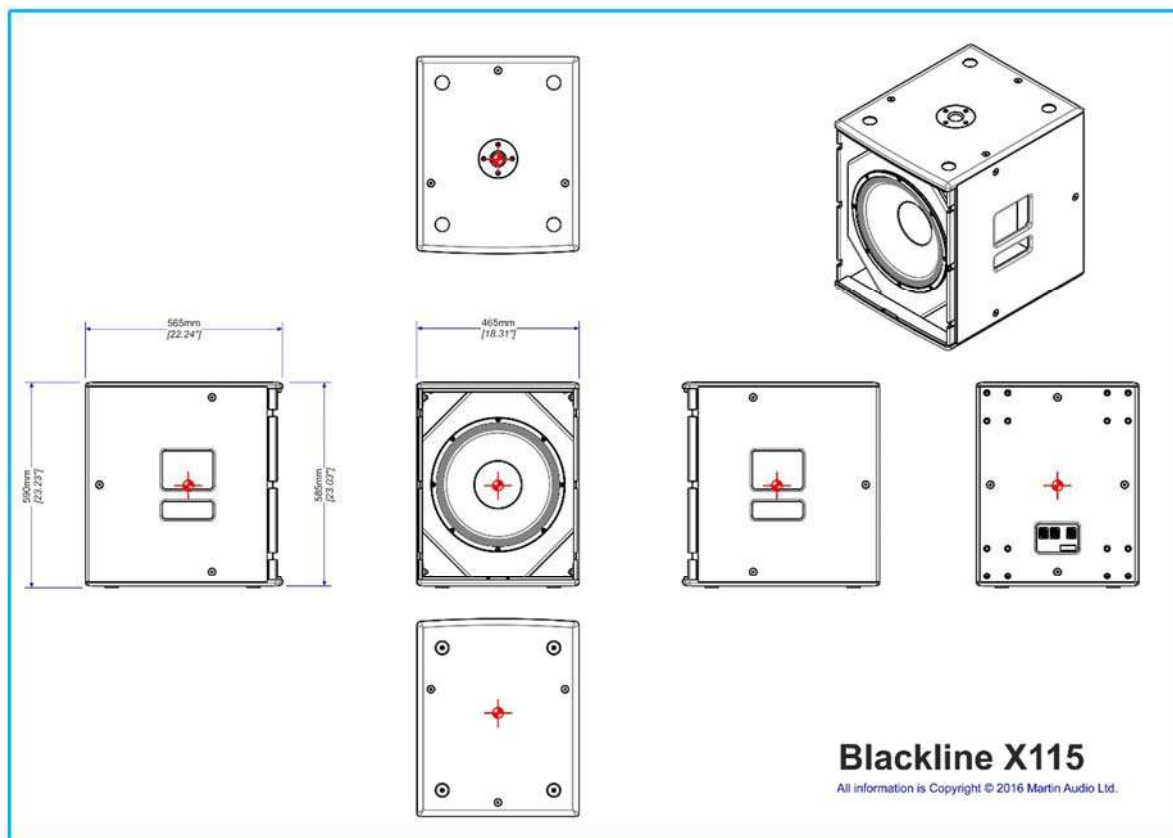
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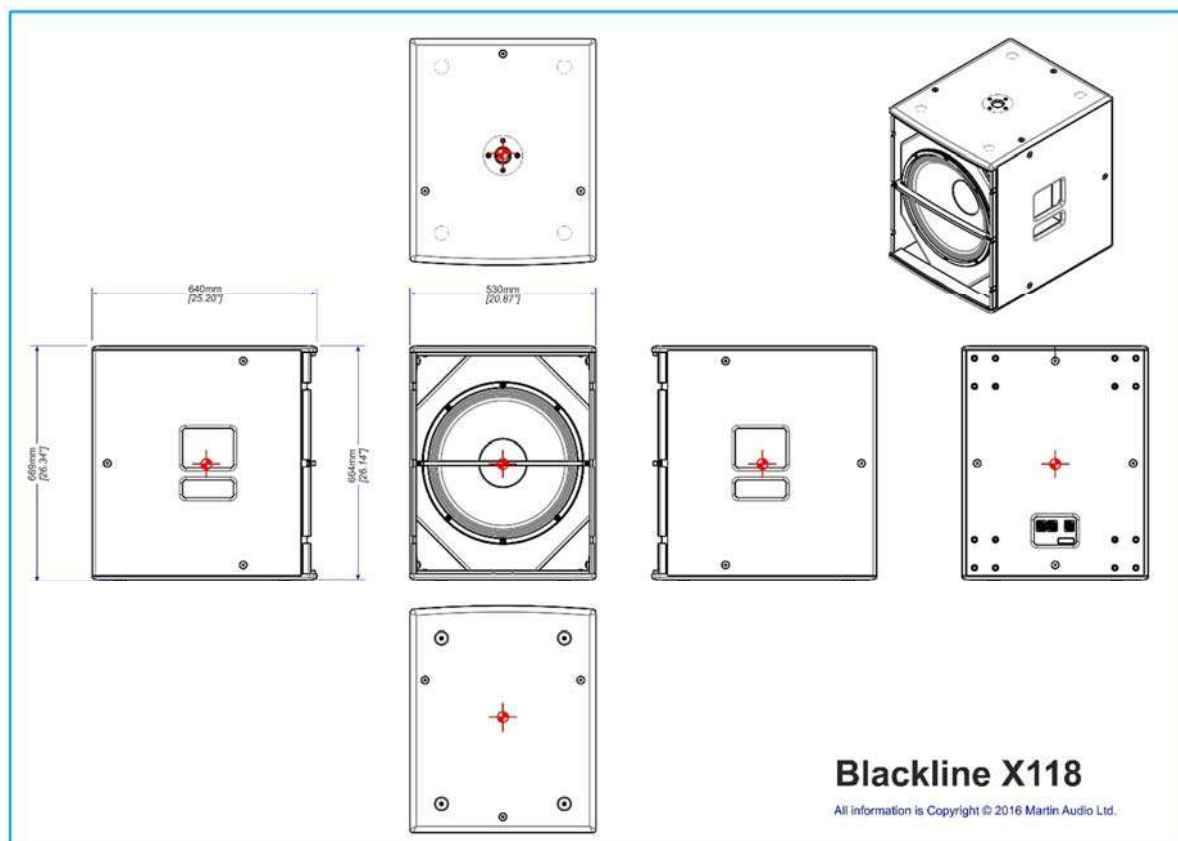
X15



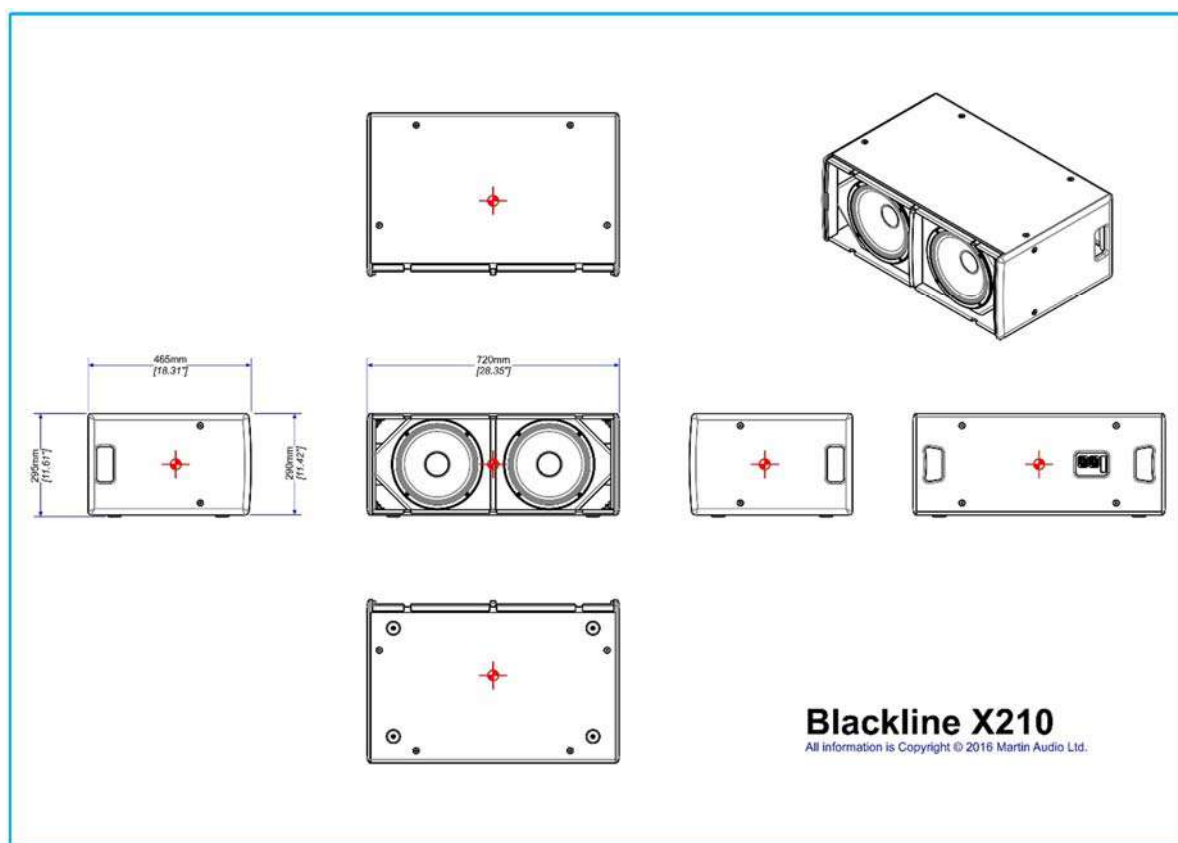
X115



X118



X210



Warranty

Martin Audio BlacklineX Loudspeaker Systems 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.

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