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The Martin Experience



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 73/23/EEC, amended by 93/68/EEC.

Standards Applied	EMC Emission	EN55103-1:1996
	Immunity	EN55103-2:1996
	Electrical Safety	EN60065:1993

1 INTRODUCTION

Thank you for purchasing a Martin Audio Blackline Series system. The Blackline Series is a range of portable loudspeaker enclosures designed for a variety of portable sound reinforcement and club applications.

Blackline products covered in this user's guide include the F12 and F15 full-range systems, the H2 and H3 horn-loaded systems and the S15, S18 and S218 sub-bass enclosures.

For optimum performance, it is recommended that Blackline Series systems are used with the M3 electronic controller. The M3 provides crossover, EQ and limiter functions for bi-amped Blackline configurations and may also be used as an optional equaliser and limiter for the full-range F12 and F15. Please refer to the M3 user's guide for further information.

2 UNPACKING

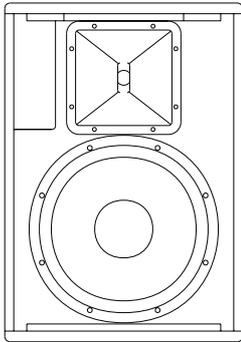
Each Martin Audio Blackline Series loudspeaker is built to the highest standard and thoroughly inspected before it leaves the factory. After unpacking the system, examine it carefully for any signs of transit damage and inform your dealer if any such damage is found. It is suggested that you retain the 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.

3 BLACKLINE SERIES OVERVIEW

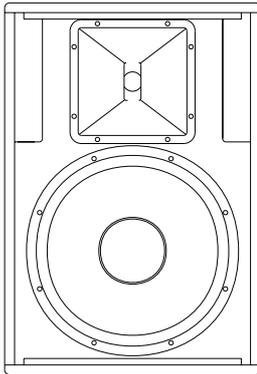
The Blackline Series is made up of two compact full-range systems, one dedicated mid/high pack, one horn-loaded full-range system and three sub-bass systems.

3.1 2-way full-range systems



F12

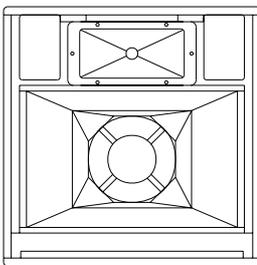
The F12 is a 2-way full-range system with 12" (300mm) LF driver and 1" (25mm) exit compression driver mounted on a rotatable 80 x 50 constant directivity HF horn. It is ideal for applications which call for compact size, high output and ease of transportation. With its multi-angle cabinet shape and rotatable horn, it can be either tripod mounted or used as a highly efficient floor monitor. To rotate the horn for horizontal use, remove the grille (see 3.5), unscrew the horn and rotate it through 90 degrees. The F12 may be used with or without an M3 controller.



F15

The F15 delivers impressive and dynamic full-frequency sound from a compact 2-way speaker. A powerful 15"(380mm)/3"(76mm) coil bass driver is teamed with a 1.4" (35mm) exit compression driver mounted on a rotatable 80 x 50 high frequency horn. The F15 has a versatile multi-angle enclosure configurable for vertical or horizontal use and a pole mount socket is provided for tripod mounting. To rotate the horn for horizontal use, remove the grille (See 3.5 below), unscrew the horn and rotate it through 90 degrees. The F15 may be used with or without an M3 controller.

3.2 2-way mid/high system



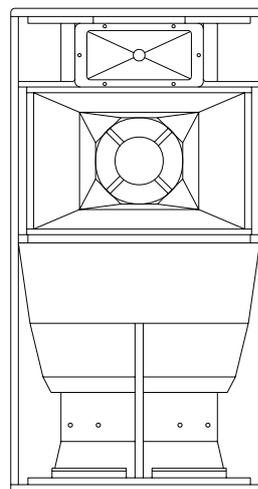
H2

The H2 is the essential mid/high pack for dance club and live music stages. It features an innovative Hybrid™ 10" (250mm) mid-range horn with a unique phase-ball loading device. This maintains the 70 x 40 directivity pattern of the mid horn up to 2kHz where a 1" (25mm) exit HF compression driver takes over. The H2 has a switchable active/passive 2kHz crossover network to permit either passive or bi-amp operation. At the lower end of its range, performance of the mid extends down to 160Hz.

3.3 3-way full range system

H3

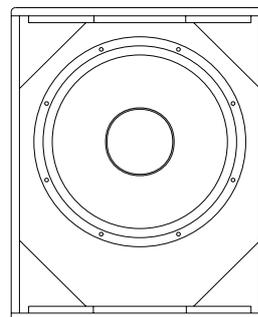
The H3 is a bi-amped three-way one box system. Fully horn-loaded, its separate low, mid and high horn sections are optimised for each band. The low frequency Hybrid™ horn is driven by a 15" (380mm)/4" (101mm) voice coil driver and reflex loading extends the LF output to below the natural horn cut-off point. The 10" (250mm) mid-horn features a phase-ball loading device and high frequencies are handled by a 1" (25mm) exit compression driver on a 70 x 40 HF horn. Rear castors are fitted for ease of transportation.



3.4 Sub-bass systems

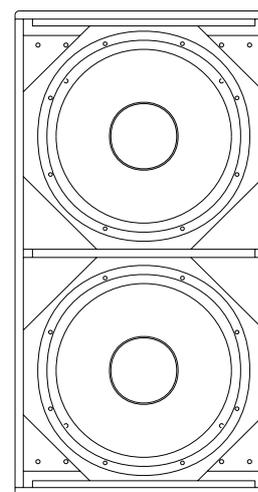
S15/S18

The S15 and S18 sub-bass systems can be used with either the F12 or F15 to extend and increase the total low frequency output power. The S15 provides punchy bass from a 15" (380mm) driver whilst the S18 can produce deep bass from its 18" (460mm) drive unit. Both feature 4" (101mm) high temperature voice coils and the enclosures have large ports to reduce air noise. Each sub-bass can operate in passive add-on mode using its internal switchable passive network or may be used actively with an M3 controller. Both the S15 and S18 are fitted with a pole socket to mount an F12 or F15 above the sub-bass enclosure.



S218

The S218 is designed to be driven actively via the M3 controller. Its two rugged 18" (460mm)/4" (101mm) voice coil drivers are built to withstand the large excursions typical of high level sub-bass reproduction. Large ports ensure optimum enclosure tuning whilst reducing turbulent air noise. When used with the H2 or H3, the S218 forms the bass foundation of a powerful Blackline portable club system, equally suitable for live or dance venues.



3.5 Grille removal

To remove the grille, first remove any grille retaining screws (F12 none/F15 one at the top/all other cabinets two at the bottom, one at the top). The grille can then be removed by inserting a flat bladed screwdriver under one of the notches at the top and bottom of the grille and gently levering the grille out of the side channels.

4 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.

4.1 Tripod mounting

The F12 and F15 incorporates a pole mounting socket to facilitate mounting on tripod stands. When using stands, the following precautions are advised:

Ensure that the stand will support the weight of the speaker by checking the stand manufacturers rating.

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.

4.2 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.

4.3 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.

Blackline Series enclosures are designed for portable applications, but can be suspended singly by means of the threaded inserts provided.

The F12, F15, H2 and H3 enclosures are fitted internally with steel corner reinforcement brackets 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. 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. Only forged shoulder eye bolts should be considered and it is important that the thread length is at least 30mm. A flat washer should be inserted between the eyebolt and the enclosure. **Formed eye bolts i.e. those which are formed from a steel rod bent into an eye should be avoided.**

5 AMPLIFICATION

Blackline Series loudspeakers are designed to be used with professional power amplifiers capable of producing the following power outputs into 4 ohms:

F12		400-650W
F15		400-800W
H2	MF/ MF + HF	400-650W
	HF	100-400W
H3	LF	400-1000W
	MF + HF	400-650W
S15		400-1000W
S18		400-1000W
S218		800-2000W

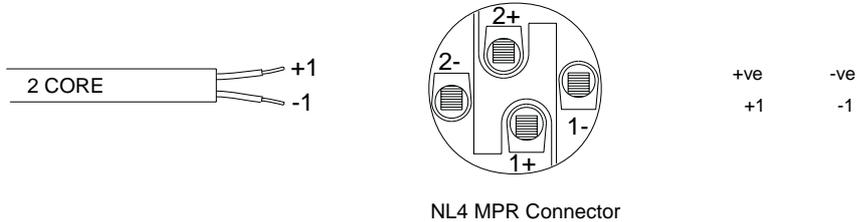
WARNING: Care should be taken to avoid amplifier clipping. It is important to understand that a low power amplifier driven into clipping is more likely to damage a loudspeaker than a higher power amplifier used within its ratings. This is because music signals have a high peak-to-average "crest" factor. When an amplifier is severely overdriven, its output waveform is clipped (its peaks are squared off) – reducing the crest factor. In extreme cases, the waveform can approach that of a square wave. An amplifier is normally capable of producing far more power under these conditions than its undistorted rated power output. The use of very high power amplifiers with outputs greater than those recommended is discouraged.

Care should be taken to avoid switch-on surges, which can result in momentary power peaks in excess of specified ratings. When powering up a sound system it is important to switch on the amplifiers after the mixer and control electronics have stabilised. When powering down the system, reverse the sequence and switch off the amplifiers first.

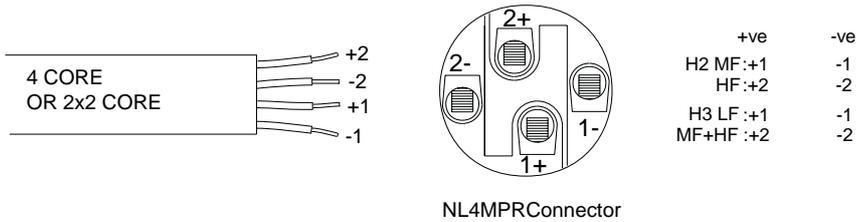
6 CONNECTIONS

Each connector panel has two Neutrik Speakon connectors wired in parallel with each other. The second connector allows use of a short link lead to power another parallel loudspeaker. The connectors are wired as follows:

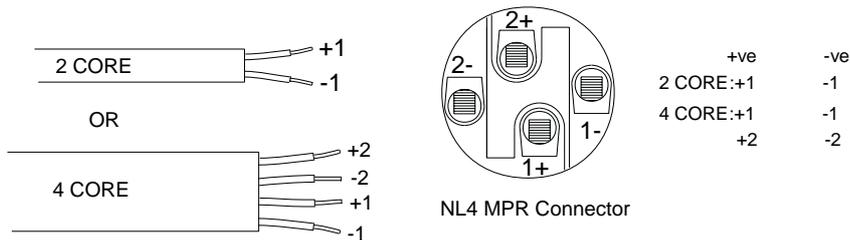
F12/F15/S15/S18/H2 PASSIVE



H2 ACTIVE/H3



S218



NOTE: Pins +1/+2 and -1/-2 are connected internally to facilitate the use of 4 Core cable to reduce power loss.

7 CABLE LENGTHS

When connecting Blackline systems to an amplifier, it is recommended that the return resistance of the cable used is less than one tenth of the nominal impedance of the system or systems in parallel. The table below gives an indication of the maximum permissible cable runs for various conductor cross-sectional areas.

Conductor CSA	Maximum Cable Run		
	4 ohms	8 ohms	16 ohms
1.0mm ²	11m	22m	44m
1.5mm ²	17m	34m	68m
2.0mm ²	22m	44m	88m
2.5mm ²	29m	58m	116m
4.0mm ²	44m	88m	176m
6.0mm ²	66m	132m	264m

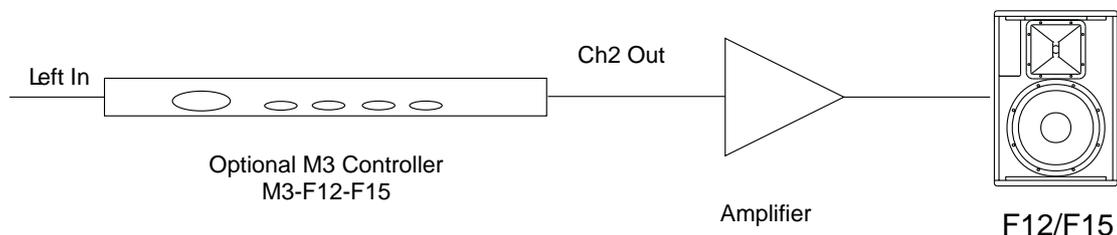
8 SYSTEM CONFIGURATIONS

There are many different system combinations possible with the Blackline Series. Shown below are some typical configurations. The number of full-range or mid/high systems required to match the efficiency of one sub-bass system is shown as a recommended cabinet ratio (RCR). Please note that for simplicity only the left channel is shown and that each line in the diagram represents a pair of wires.

8.1 Passive systems

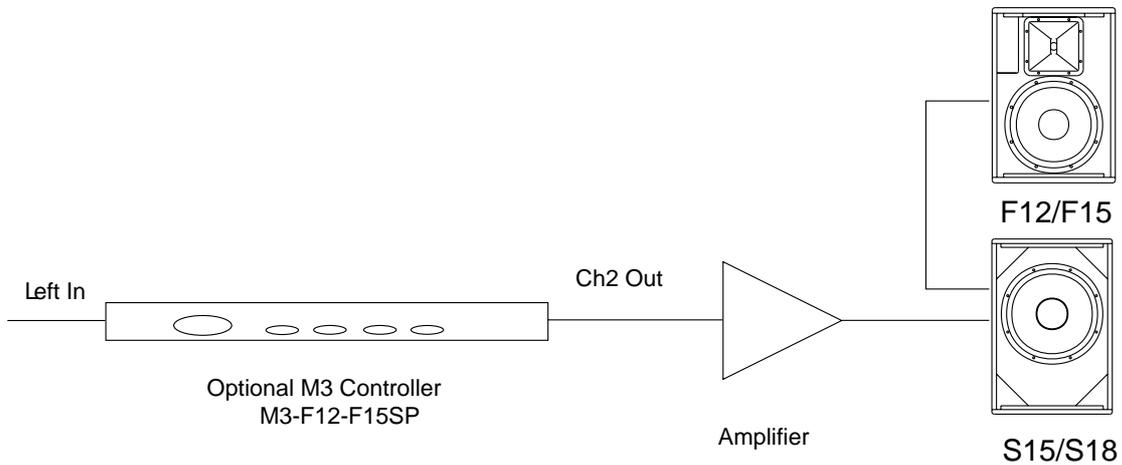
F12/F15 Full-range

Because the F12 and F15 are passive systems embodying correct acoustic design principles, they can be used without a controller provided recommended amplifier power is not exceeded and care is taken to avoid amplifier clipping. Use of an optional M3 controller with its system-specific low frequency EQ and built-in limiters will result in improved bass response and system protection.



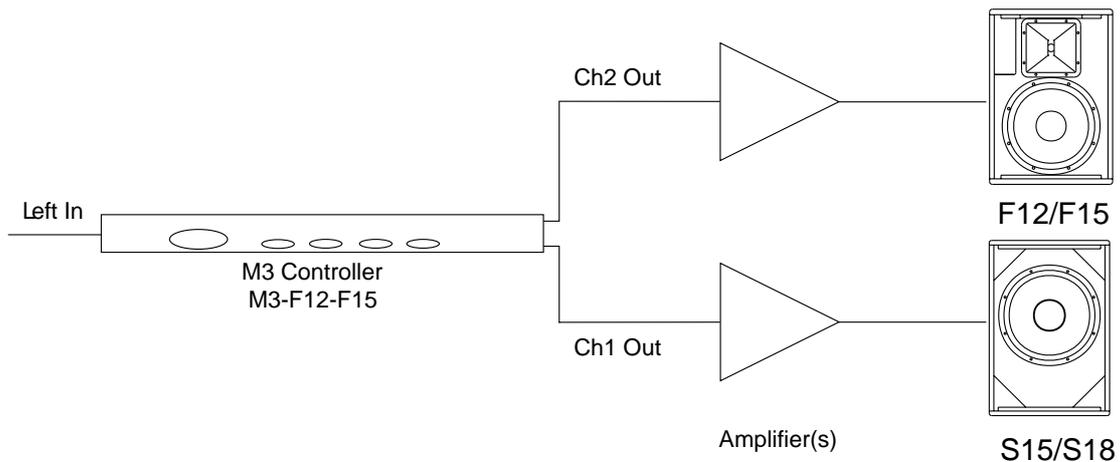
F12/F15 Full-range with add-on S15/S18 sub-bass RCR = 1:1

The F12 or F15 can be used with either the S15 or S18 in passive add-on mode. This provides a simple way of increasing bass performance without the need for an additional amplifier. The switch at the back of the sub-bass enclosure should be switched to "passive" and a link lead run from the sub-bass to the F12 or F15. This configuration will present a 4 ohm load to the amplifier. An M3 controller for this passive configuration is optional – just performing limiting functions without any additional system EQ.



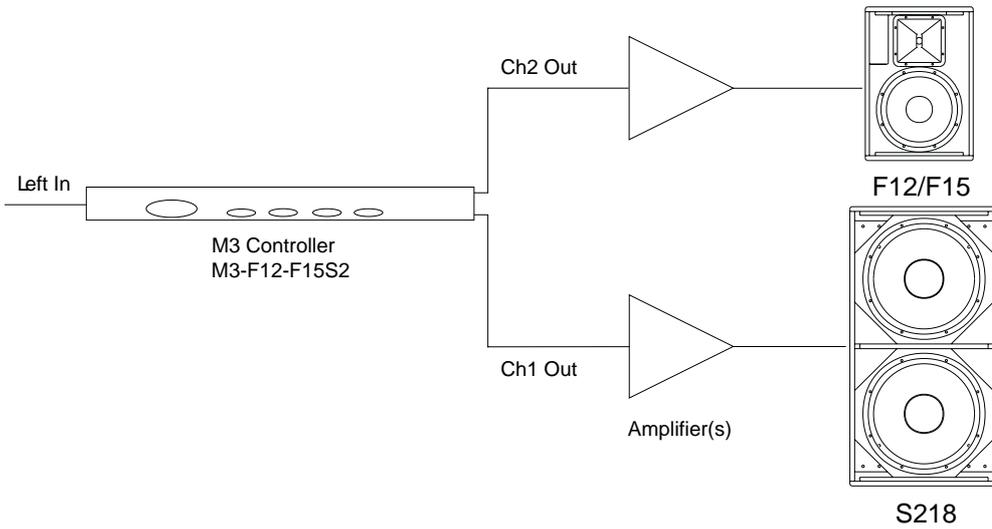
8.2 Bi-amped systems

F12/F15 with S15/S18 sub-bass RCR = 1:1



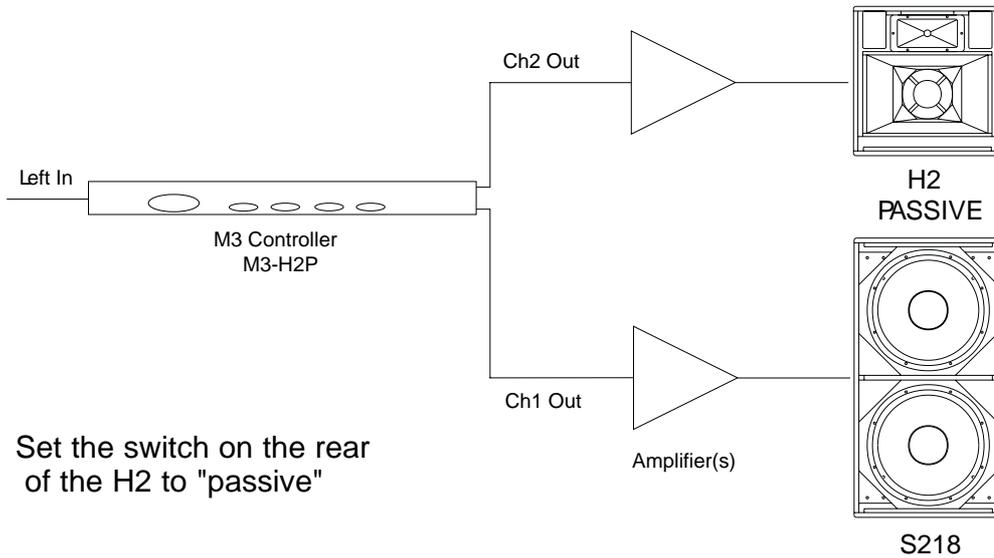
F12/F15 with S218 sub-bass

RCR = 2:1



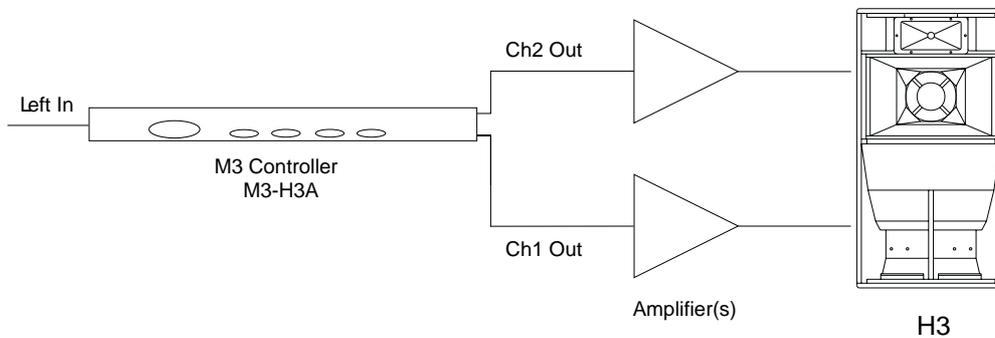
H2 passive with S218 sub-bass

RCR = 1:1



Set the switch on the rear of the H2 to "passive"

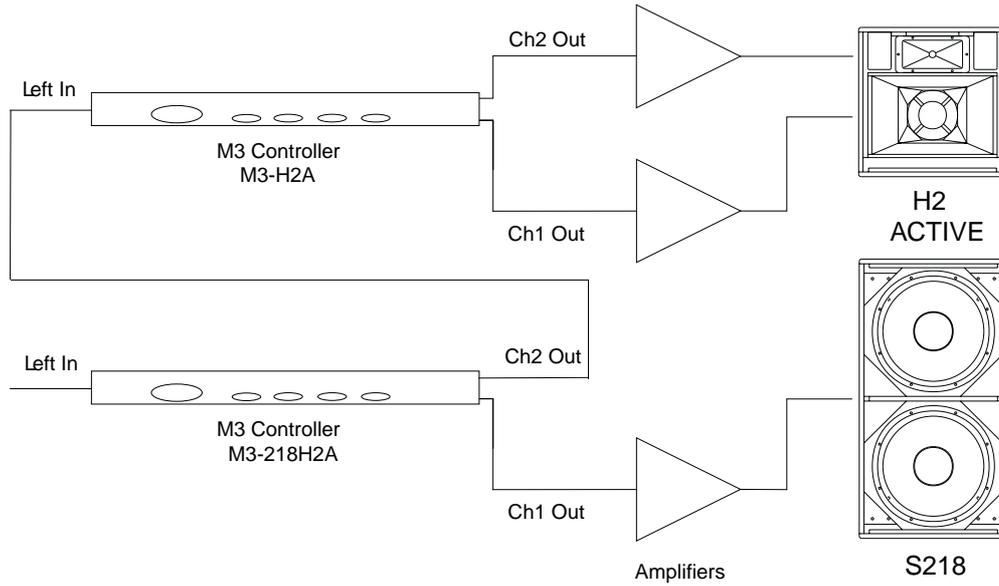
H3 full-range



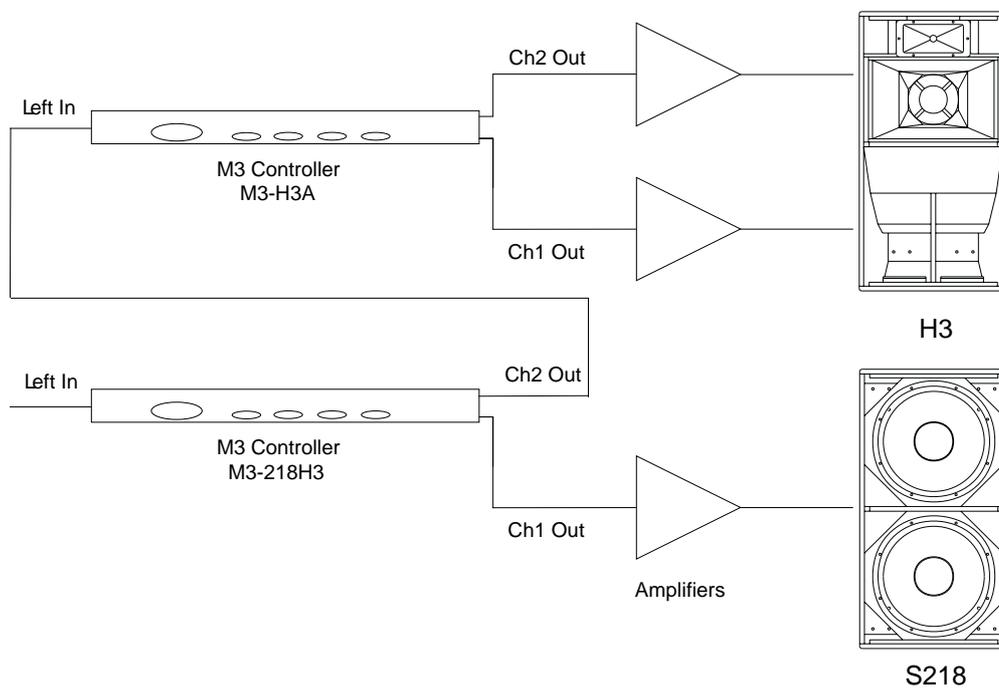
8.3 Tri-amped systems

H2 active with S218 sub-bass RCR = 1:1

Set the switch at the rear of the H2 to "active"



H3 with S218 sub-bass RCR = 1:1



9 WARRANTY

Martin Audio Blackline Series products 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.

This warranty is exclusive and no other warranty is expressed or implied. This warranty does not affect your statutory rights.

10 TECHNICAL SPECIFICATIONS

F12

TYPE	Compact, two way passive multi-angled, vented
FREQUENCY RESPONSE	65Hz-18kHz \pm 3db
RATED POWER	300W AES, 1200W peak
SENSITIVITY	97dB
MAXIMUM SPL	120dB continuous, 126dB peak
RECOMMENDED AMPLIFIER	400-650W (into 4 ohms)
DISPERSION	80 degs horizontal x 50 degs vertical
NOMINAL IMPEDANCE	8 ohms
BASS	300mm (12")
MID	—
HIGH FREQUENCY	25mm (1") exit compression driver
CROSSOVER	2kHz passive
ENCLOSURE	38 litre, multi laminate birch ply
FINISH	Textured black paint
GRILLE	Black perforated steel
CONNECTOR	2 x Neutrik NL4
FITTINGS	10 x M8 inserts. Top hat fitting 4 x M8 bracket inserts
DIMENSIONS	(W) 400mm x (H) 571mm x (D) 364mm (W) 15.8ins x (H) 22.5ins x (D) 14.3ins
WEIGHT	21kg (46lbs)
SHIPPING DIMENSIONS	(W) 520mm x (H) 650mm x (D) 470mm (W) 20.4ins x (H) 25.6ins x (D) 18.5ins
SHIPPING WEIGHT	22kg (48.5lbs)

F15

TYPE	Compact, two way passive multi-angled, vented
FREQUENCY RESPONSE	55Hz-18kHz \pm 3db
RATED POWER	400W AES, 1600W peak
SENSITIVITY	99dB
MAXIMUM SPL	123dB continuous, 129dB peak
RECOMMENDED AMPLIFIER	400-800W (into 4 ohms)
DISPERSION	80 degs horizontal x 50 degs vertical
NOMINAL IMPEDANCE	8 ohms
BASS	380mm (15")
MID	—
HIGH FREQUENCY	35mm (1.4") exit compression driver
CROSSOVER	1.2kHz passive
ENCLOSURE	68 litre, multi laminate birch ply
FINISH	Textured black paint
GRILLE	Black perforated steel
CONNECTOR	2 x Neutrik NL4
FITTINGS	12 x M8 inserts. Top hat fitting
DIMENSIONS	(W) 470mm x (H) 690mm x (D) 443mm (W) 18.5ins x (H) 27.2ins x (D) 17.5ins
WEIGHT	32.5kg (71.5lbs)
SHIPPING DIMENSIONS	(W) 590mm x (H) 760mm x (D) 560mm (W) 23ins x (H) 30ins x (D) 22ins
SHIPPING WEIGHT	39kg (85.8lbs)

H2

TYPE	Two way passive/active trapezoid Hybrid™ fully horn loaded
FREQUENCY RESPONSE	150Hz-18kHz ±3db
RATED POWER	MF/(MF+HF): 300W AES, 1200W peak HF: 60W AES, 240W peak
SENSITIVITY	MF/(MF+HF): 104dB HF: 106dB
MAXIMUM SPL	127dB continuous, 133dB peak
RECOMMENDED AMPLIFIER	MF/(MF+HF): 400-650W (into 4 ohms) HF: 100-400W (into 4 ohms)
DISPERSION	70 degs horizontal x 40 degs vertical
NOMINAL IMPEDANCE	MF/(MF+HF): 8 ohms HF: 8 ohms
BASS	—
MID	250mm (10")
HIGH FREQUENCY	25mm (1") exit compression driver
CROSSOVER	150Hz active 2kHz passive/active
ENCLOSURE	75 litre, multi laminate birch ply
FINISH	Textured black paint
GRILLE	Black perforated steel
CONNECTOR	2 x Neutrik NL4
FITTINGS	12 x M10 inserts. 4 x 100mm castors
DIMENSIONS	(W) 561mm x (H) 571mm x (D) 496mm (W) 22.1ins x (H) 22.5ins x (D) 19.5ins
WEIGHT	35kg (77lbs)
SHIPPING DIMENSIONS	(W) 660mm x (H) 670mm x (D) 600mm (W) 26ins x (H) 26.4ins x (D) 23.6ins
SHIPPING WEIGHT	35kg (77.2lbs)

H3

TYPE	Three way biamp trapezoid Hybrid™ fully horn loaded
FREQUENCY RESPONSE	50Hz-18kHz ±3db
RATED POWER	LF: 500W AES, 2000W peak MF+HF: 300W AES, 1200W peak
SENSITIVITY	LF: 104dB MF+HF: 104dB
MAXIMUM SPL	130dB continuous, 136dB peak
RECOMMENDED AMPLIFIER	LF: 400-1000W (into 4 ohms) MF+HF: 400-650W (into 4 ohms)
DISPERSION	70 degs horizontal x 40 degs vertical
NOMINAL IMPEDANCE	LF: 8 ohms MF+HF: 8 ohms
BASS	380mm (15")
MID	250mm (10")
HIGH FREQUENCY	25mm (1") exit compression driver
CROSSOVER	250Hz active 2kHz passive
ENCLOSURE	250 litre, multi laminate birch ply
FINISH	Textured black paint
GRILLE	Black perforated steel
CONNECTOR	2 x Neutrik NL4
FITTINGS	12 x M10 inserts. 4 x 100mm castors
DIMENSIONS	(W) 561mm x (H) 1066mm x (D) 780mm (W) 22.1ins x (H) 42ins x (D) 30.7ins
WEIGHT	77.5kg (170.5lbs)
SHIPPING DIMENSIONS	(W) 610mm x (H) 1090mm x (D) 930mm (W) 24ins x (H) 42.9ins x (D) 36.6ins
SHIPPING WEIGHT	78kg (172lbs)

S15

TYPE	Compact vented sub bass system
FREQUENCY RESPONSE	45Hz-120Hz \pm 3db
RATED POWER	500W AES, 2000W peak
SENSITIVITY	98dB
MAXIMUM SPL	123dB continuous, 129dB peak
RECOMMENDED AMPLIFIER	400-1000W (into 4 ohms)
DISPERSION	—
NOMINAL IMPEDANCE	8 ohms
BASS	380mm (15")
MID	—
HIGH FREQUENCY	—
CROSSOVER	120Hz passive/active
ENCLOSURE	100 litre, multi laminate birch ply
FINISH	Textured black paint
GRILLE	Black perforated steel
CONNECTOR	2 x Neutrik NL4.
FITTINGS	Top hat fitting
DIMENSIONS	(W) 470mm x (H) 690mm x (D) 496mm (W) 18.5ins x (H) 27.2ins x (D) 19.5ins
WEIGHT	38.5kg (84.5lbs)
SHIPPING DIMENSIONS	(W) 590mm x (H) 760mm x (D) 610mm (W) 23.2ins x (H) 29.9ins x (D) 24ins
SHIPPING WEIGHT	39kg (86lbs)

S18

TYPE	Compact vented sub bass system
FREQUENCY RESPONSE	40Hz-120Hz \pm 3db
RATED POWER	500W AES, 2000W peak
SENSITIVITY	99dB
MAXIMUM SPL	124dB continuous, 130dB peak
RECOMMENDED AMPLIFIER	400-1000W (into 4 ohms)
DISPERSION	—
NOMINAL IMPEDANCE	8 ohms
BASS	460mm (18")
MID	—
HIGH FREQUENCY	—
CROSSOVER	120Hz passive/active
ENCLOSURE	150 litre, multi laminate birch ply
FINISH	Textured black paint
GRILLE	Black perforated steel
CONNECTOR	2 x Neutrik NL4
FITTINGS	Top hat fitting
DIMENSIONS	(W) 561mm x (H) 690mm x (D) 595mm (W) 22.1ins x (H) 27.2ins x (D) 23.4ins
WEIGHT	45kg (99lbs)
SHIPPING DIMENSIONS	(W) 680mm x (H) 770mm x (D) 710mm (W) 26.8ins x (H) 30.3ins x (D) 28ins
SHIPPING WEIGHT	45kg (99.2lbs)

S218

TYPE	Dual driver vented sub bass system
FREQUENCY RESPONSE	35Hz-150Hz \pm 3db
RATED POWER	1000W AES, 4000W peak
SENSITIVITY	102dB
MAXIMUM SPL	130dB continuous, 136dB peak
RECOMMENDED AMPLIFIER	800-2000W (into 4 ohms)
DISPERSION	—
NOMINAL IMPEDANCE	4 ohms
BASS	2 x 460mm (18")
MID	—
HIGH FREQUENCY	—
CROSSOVER	150Hz active
ENCLOSURE	320 litre, multi laminate birch ply
FINISH	Textured black paint
GRILLE	Black perforated steel
CONNECTOR	2 x Neutrik NL4
FITTINGS	4 x 100mm castors
DIMENSIONS	(W) 561mm x (H) 1066mm x (D) 780mm (W) 22.1ins x (H) 42ins x (D) 30.7ins
WEIGHT	87kg (191.5lbs)
SHIPPING DIMENSIONS	(W) 570mm x (H) 1090mm x (D) 930mm (W) 22.4ins x (H) 42.9ins x (D) 36.6ins
SHIPPING WEIGHT	92kg (202.8lbs)

Due to our policy of continuous improvement all specifications are subject to change without notice.

Blackline Series



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Blackline Series

F12, F15, H3, H2, S15, S18, S218

User's Guide



ENGLISH



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