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The Martin Experience



Standards Applied

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

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.

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.

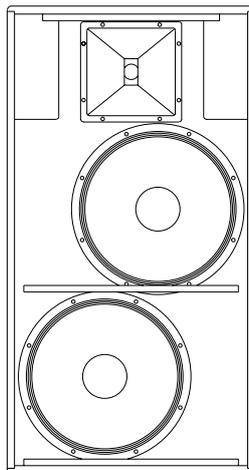
This user guide covers the use of the F215 full range system and its use with the S218 sub-bass system. It also covers use with the Blackline M3 controller.

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 F215 OVERVIEW



F215 (Fig 1)

The Blackline F215 is a two-way passive, trapezoidal enclosure with dual 15" (380mm)/ 3" (75mm) coil low frequency drivers. Whilst both these drivers have the same low frequency characteristics and operate together up to 250Hz, they have been engineered to have different characteristics in the mid-band. Above 250Hz, only the upper driver - a specially designed, low distortion bass-mid device – is used up to the 1.3kHz crossover point. This technique avoids the uneven response which would occur if both drivers were allowed to operate together over the mid-band and maintains clarity and articulation at extreme output levels.

High frequencies are reproduced by a 1.4" (35mm) exit titanium diaphragm compression driver, loaded by a proprietary rotatable 80° x 50° constant directivity horn.

The trapezoidal enclosure is of multi-laminate birch ply construction incorporating a tough punched steel grille. Two large ports permit uncompressed low frequency output at high input levels. Handles are fitted top and bottom along with four 4" (100mm) rear mounted castors for ease of transportation. Twelve M10 flying inserts are provided for cabinet rigging.

The F215 can be used with or without the M3 controller. Use of the M3 will enhance the low frequency performance of the system and provide high quality limiters to protect the F215 from being overdriven. The M3 can also be used to provide crossover, EQ and limiter functions for the F215 with the Blackline S218 sub-bass system for situations requiring extreme low frequency output.

3.1 Grille Removal

To remove the grille, first remove the grille retaining screws (two at the bottom, one at the top). The grille can then be removed by inserting a flat bladed screwdriver under 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 a high level.

4.1 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.

4.2 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 F215 enclosure is 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

The F215 loudspeaker is designed to be used with professional power amplifiers capable of producing the 400-1000W into 4 ohms:

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.

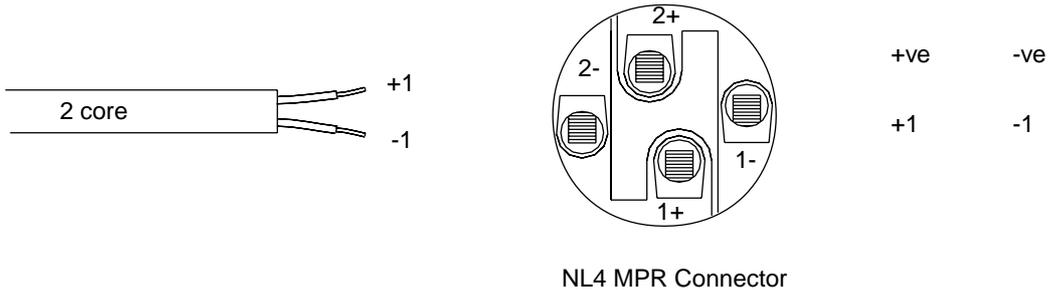
The use of very high power amplifiers with outputs greater than those recommended is discouraged.

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

The F215 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:

Figure 4.



(Fig 4)

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

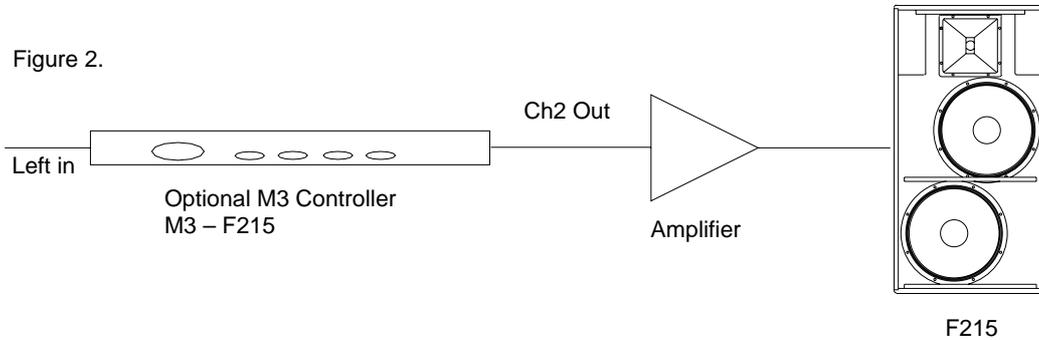
8 SYSTEM CONFIGURATIONS

The F215 can be used with or without the M3 controller. Use of the M3 will enhance the low frequency performance of the system and provide high quality limiters to protect the F215 from being overdriven. The M3 can also be used to control the F215 with the Blackline S218 subwoofer for more ambitious nightclub installations and live sound reinforcement requiring extreme low frequency output. The number of full-range 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 F215 Full-range

Because the F215 is a passive system embodying correct acoustic design principles, it 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.

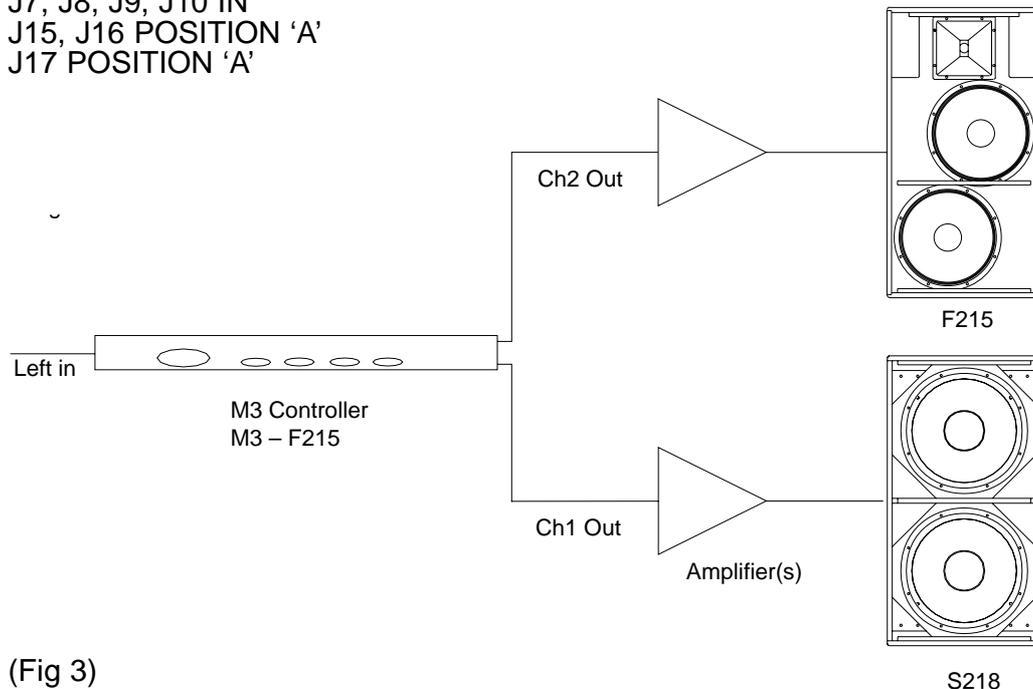
Mode Switch Full-range (Red LED)
 J7, J8, J9, J10 IN
 J15, J16 POSITION 'A'
 J17 POSITION 'A'



(Fig 2)

8.2 F215 with S218 Sub-bass RCR=1:1

Mode Switch High-pass (Green LED)
 J7, J8, J9, J10 IN
 J15, J16 POSITION 'A'
 J17 POSITION 'A'



(Fig 3)

9 WARRANTY

Martin Audio F215 loudspeakers are warranted against manufacturing defects in materials or craftsmanship over a period of 5 years from the date of original purchase. During the warranty period Martin Audio will, at its discretion, either repair or replace products which prove to be defective provided that the product is returned in its original packaging, shipping prepaid, to an authorised Martin Audio service agent or distributor.

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

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

10 TECHNICAL SPECIFICATIONS

F215

TYPE	Two-way passive, reflex enclosure with dedicated low frequency driver
FREQUENCY RESPONSE(1)	45Hz-17kHz \pm 3db
DRIVERS	15" (380mm) /3" (75mm) coil bass driver 15" (380mm) /3" (75mm) coil bass-mid driver 1.4" (35mm) exit HF compression driver
RATED POWER (2)	800W AES, 3200W peak
SENSITIVITY (3)	101dB 1 Watt/1 metre
MAXIMUM SPL (4)	128dB continuous, 134dB peak
RECOMMENDED AMPLIFIER	400-1200W (into 4 ohms)
DISPERSION (-6dB)	80° horizontal x 50° vertical
NOMINAL IMPEDANCE	4 ohms
CROSSOVER	1.3kHz passive
ENCLOSURE	165 litre (5.8cu foot), multi-laminate birch ply
FINISH	Textured black paint
PROTECTIVE GRILLE	Black perforated steel
CONNECTORS	2 x Neutrik NL4
FITTINGS	12 x M10 threaded inserts 4 x 4" (100mm) castors
DIMENSIONS	(W) 561mm x (H) 1066mm x (D) 496mm (W) 22.1ins x (H) 42ins x (D) 19.5ins
WEIGHT	62kg (137 lbs)
SHIPPING DIMENSIONS	(W) 640mm x (H) 1090mm x (D) 560mm (W) 25.2ins x (H)43ins x (D) 22ins
SHIPPING WEIGHT	68kg (149.8 lbs)

Notes

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

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

Blackline F215



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Blackline F215

User's Guide



ENGLISH



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