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The Martin Experience

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Martin Audio – EM SERIES



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 EM Series system. The EM Series is a range of powerful yet compact loudspeakers designed to suit a variety of permanent installation applications. The trapezoid shape of the enclosures allows them to be used singly or arrayed in multiples. Specific uses include distributed foreground sound, theme bars, nightclubs and audio-visual events.

2 UNPACKING

Each Martin Audio loudspeaker is built to the highest standard and thoroughly inspected before it leaves the factory. After unpacking the system, examine it carefully for any signs of transit damage and inform your dealer if any 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 OVERVIEW

The EM Series products covered in this guide include the EM26, EM56, EM76 and EM186 full-range systems and the EM201 and EM251 sub-bass systems. Please note that the EM15 and EM150 are covered in a separate User's Guide. The EM26, EM56 and EM76 are 2-way systems with internal crossover networks. The EM186 is a bi-amped 3-way system and the EM201 and EM251 are dedicated sub-bass systems.

For optimum performance, it is recommended that EM Series loudspeakers are used with EMX System Controllers – the EMX1A for the EM26/56/76 and the EMX2A for the EM186. The controllers can be switched between full-range and sub-bass operation and contain limiter circuitry activated by sense lines for loudspeaker protection. Please refer to the appropriate controller user guide for detailed information on connections and correct limiter settings for a particular EM Series set-up.

3.1 EM26

The EM26 is a miniature high performance loudspeaker suited to a variety of applications from sports bars to high level foreground systems. It is a passive two-way system featuring an 8" (200mm) bass driver and a 1" (25mm) ferrofluid cooled HF driver on a 70 x 50 horn.

3.2 EM56

The EM56 is an ultra-compact passive two-way system with a high output capability for its small size. Featuring a 10" (250mm) bass driver and 1" (25mm) compression driver on a 70 x 40 degree horn, it is particularly useful in distributed sound and audio-visual applications.

3.3 EM76

The EM76 is a powerful stand-alone system combining dynamic full-frequency performance with exceptional smoothness. Designed to meet the install requirement for a 12" (305mm) bass driver plus 1" (25mm) compression driver combination, the EM76 is a passive 2-way system that is ideal for most applications.

3.4 EM186

The EM186 is an innovative three-way system featuring a powerful 15" (385mm) low frequency driver. Midrange is produced by a unique 6.5" (160mm) mid horn developed to overcome the power and distortion limitations of traditionally used large format compression drivers and high frequencies are produced by a 1" (25mm) compression driver. Mid and HF dispersion patterns are 65 x 40 degrees and the mid/high section is rotatable to enable vertical or horizontal installation. The EM186 is designed for bi-amplification at its 650Hz low/mid crossover point.

3.5 EM201 and EM251

Where an EM Series enclosure requires additional low frequency enhancement, use of either the EM201 or EM251 will extend the power bandwidth of the system to below 35Hz. The EM201 houses a single 18" (450mm) driver whilst the EM251 utilises twin 15" (385mm) drivers in an optimally tuned compact reflex enclosure.

NOTE:

Passive systems such as the EM26, EM56 and EM76 may be used without a system controller provided recommended amplifier power is not exceeded and care is taken to avoid amplifier clipping. Use of an optional EMX1A controller with its system specific low frequency EQ and built in limiters will result in improved bass response and system protection.

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 EM 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 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.

The EM26, EM56 and EM76 are provided with rear panel fixings for wall brackets. The EM26, EM56, EM76 and EM186 are also fitted with threaded inserts to allow the suspension of a single enclosure.

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 enclosures 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

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

EM26	300-400W
EM56	300-400W
EM76	400-550W
EM186	400-550W
EM201	550-700W
EM251	550-700W

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 a Neutrik Speakon NL4 connector wired as follows:

<u>NL4 Pin</u>	<u>EM26/56/76/201/251</u>	<u>EM186</u>
1-	Input -ve	Low -ve
1+	Input +ve	Low +ve
2-	Link -ve	Mid/High -ve
2+	Link +ve	Mid/High +ve

7 CABLE LENGTHS

When connecting loudspeaker 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.

<u>Conductor CSA</u>	<u>Maximum Cable Run</u>		
	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 EM26, EM56, EM76 and EM186 may be used to cover the full-frequency range – either distributed singly or arrayed in multiples. The EMX1A controller provides appropriate limiting and low frequency equalisation for full-frequency operation of the EM26, EM56 and EM76. The EM186 requires an EMX2A controller.

Where additional low frequency output is required, an EM201 or EM251 sub-bass system driven from a separate amplifier fed from the sub-bass output of the controller can be added. In this case the controller should be switched from full-range to sub-bass operation by means of the recessed switch on the front panel. The sound balance of the complete system can be set up by using a screwdriver to adjust the trim controls accessible through the controller front panel. Please refer to the EMX1A or EMX2A User's Guide for further information.

9 WARRANTY

Martin Audio EM 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

EM26

TYPE	Ultra compact, two-way passive
FREQUENCY RESPONSE	70Hz-18kHz \pm 3dB
RATED POWER	125W AES, 500W peak
SENSITIVITY	94dB
MAXIMUM SPL	114dB continuous, 120dB peak
RECOMMENDED AMPLIFIER	200-300W (into 4 ohms)
DISPERSION	70 degs horizontal x 50 degs vertical
NOMINAL IMPEDANCE	8 ohms
BASS	200mm (8")
HIGH FREQUENCY	25mm (1") driver, ferrofluid cooled
CROSSOVER	3kHz passive
ENCLOSURE	12 litres, vented
CONNECTOR	1 Neutrik Speakon NL4MPR
FITTINGS	4 x M6 inserts for Omnimount 75 6 x M8 inserts
DIMENSIONS	(W) 278mm x (H) 391mm x (D) 264mm (W) 10.9ins x (H) 15.4ins x (D) 10.4ins
WEIGHT	10kg (22lbs)
SHIPPING DIMENSIONS	(W) 590mm x (H) 500mm x (D) 300mm (W) 23.2ins x (H) 19.7ins x (D) 11.8ins
SHIPPING WEIGHT	22kg (48.5lbs)
(Packed in pairs)	

EM56

TYPE	Compact, two-way passive trapezoid
FREQUENCY RESPONSE	75Hz-18kHz \pm 3dB
RATED POWER	150W AES, 600W peak
SENSITIVITY	97dB
MAXIMUM SPL	117dB continuous, 123dB peak
RECOMMENDED AMPLIFIER	300-400W (into 4 ohms)
DISPERSION (HxV)	70 degs horizontal x 40 degs vertical
NOMINAL IMPEDANCE	8 ohms
BASS	250mm (10")
HIGH FREQUENCY	25mm (1") driver, ferrofluid cooled
CROSSOVER	2kHz passive
ENCLOSURE	22 litres, vented
CONNECTOR	1 x Neutrik Speakon NL4MPR
FITTINGS	4 x M8 inserts for Omnimount 100 10 x M8 inserts, 1 x pole mounting socket
DIMENSIONS	(W) 335mm x (H) 487mm x (D) 325mm (W) 13.2ins x (H) 19.2ins x (D) 12.8ins
WEIGHT	14.5kg (32lbs)
SHIPPING DIMENSIONS	(W) 400mm x (H) 540mm x (D) 380mm (W) 15.7ins x (H) 21.3ins x (D) 15ins
SHIPPING WEIGHT	16kg (35.3lbs)

EM76

TYPE	Compact, two-way passive trapezoid
FREQUENCY RESPONSE	60Hz-18kHz \pm 3dB
RATED POWER	200W AES, 800W peak
SENSITIVITY	98dB
MAXIMUM SPL	120dB continuous, 126dB peak
RECOMMENDED AMPLIFIER	400-550W (into 4 ohms)
DISPERSION	70 degs vertical x 40 degs horizontal
NOMINAL IMPEDANCE	8 ohms
BASS	300mm (12")
HIGH FREQUENCY	25mm (1") exit compression driver
CROSSOVER	1.5kHz passive
ENCLOSURE	40 litres, vented
CONNECTOR	1 x Neutrik Speakon NL4MPR
FITTINGS	4 x M8 inserts for Omnimount 100 10 x M8 inserts, 1 x pole mounting socket
DIMENSIONS	(W) 365mm x (H) 554mm x (D) 364mm (W) 14.4ins x (H) 21.8ins x (D) 14.3ins
WEIGHT	22kg (48lbs)
SHIPPING DIMENSIONS	(W) 440mm x (H) 610mm x (D) 420mm (W) 17.3ins x (H) 24ins x (D) 16.5ins
SHIPPING WEIGHT	23.5kg (51.8lbs)

EM186

TYPE	Compact, three-way trapezoid
FREQUENCY RESPONSE	55Hz-18kHz \pm 3dB
RATED POWER	LF: 350W AES, 1400W peak MF/HF: 150W AES, 600W peak
SENSITIVITY	LF: 100dB MF/HF: 104dB
MAXIMUM SPL	124dB continuous, 130dB peak
RECOMMENDED AMPLIFIER	400-550W (into 4 ohms)
DISPERSION	65 degs horizontal x 40 degs vertical
NOMINAL IMPEDANCE	LF: 8 ohms MF/HF: 16 ohms
BASS/MID	380mm (15")/165mm (6.5")
HIGH FREQUENCY	25mm (1") exit compression driver
CROSSOVER	650Hz active 3.3kHz passive
ENCLOSURE	80 litres, vented
CONNECTOR	1 x Neutrik Speakon NL4MPR
FITTINGS	12 x M8 inserts
DIMENSIONS	(W) 442mm x (H) 827mm x (D) 430mm (W) 17.4ins x (H) 32.5ins x (D) 16.9ins
WEIGHT	36kg (79lbs)
SHIPPING DIMENSIONS	(W) 500mm x (H) 920mm x (D) 480mm (W) 19.7ins x (H) 36.2ins x (D) 18.9ins
SHIPPING WEIGHT	38.5kg (84.9lbs)

EM201

TYPE	Compact, sub-bass system
FREQUENCY RESPONSE	40Hz-120Hz \pm 3db
RATED POWER	400W AES, 1600W peak
SENSITIVITY	97dB
MAXIMUM SPL	122dB continuous, 128dB peak
RECOMMENDED AMPLIFIER	550-700W (into 4 ohms)
NOMINAL IMPEDANCE	8 ohms
BASS	460mm (18")
CROSSOVER	120Hz active (via EMX1A/EMX2A)
ENCLOSURE	145 litres, vented
CONNECTOR	1 x Neutrik Speakon NL4MPR
DIMENSIONS	(W) 520mm x (H) 805mm x (D) 494mm (W) 20.5ins x (H) 31.7ins x (D) 19.4ins
WEIGHT	37.5kg (83lbs)
SHIPPING DIMENSIONS	(W) 550mm x (H) 860mm x (D) 520mm (W) 21.7ins x (H) 33.9ins x (D) 20.9ins
SHIPPING WEIGHT	43kg (94.8lbs)

EM251

TYPE	Compact, dual-driver sub-bass system
FREQUENCY RESPONSE	38Hz-120Hz \pm 3db
RATED POWER	800W AES, 3200W peak
SENSITIVITY	99dB
MAXIMUM SPL	126dB continuous, 132dB peak
RECOMMENDED AMPLIFIER	550-800W (into 4 ohms)
NOMINAL IMPEDANCE	4 ohms
BASS	2 x 380mm (15")
CROSSOVER	120Hz active (via EMX1A/EMX2A)
ENCLOSURE	200 litres, vented
CONNECTOR	1 x Neutrik Speakon NL4MPR
DIMENSIONS	(W) 572mm x (H) 827mm x (D) 585mm (W) 22.5ins x (H) 32.5ins x (D) 23ins
WEIGHT	58.5kg (129lbs)
SHIPPING DIMENSIONS	(W) 600mm x (H) 870mm x (D) 620mm (W) 23.6ins x (H) 34.3ins x (D) 24.4ins
SHIPPING WEIGHT	65kg (143.3lbs)

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

EM Series

EM26/EM56/EM76/EM186/EM201/EM251

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EM26/EM56/EM76/EM186/EM201/EM251

User's Guide



ENGLISH



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