



MSE-218 User Manual

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EM Acoustics Loudspeakers

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DECLARATION OF CONFORMITY



The product contained within this manual conform to the requirements of the EMC Directive 89/336/EEC, amended by 92/31/EEC and 93/68/EEC, and to the requirements of the Low Voltage Directive 73/23/EEC amended by 93/68/EEC.

Products Covered:

MSE-218

EMC Emission	EN55103-1:1996 ¹
Immunity	EN55103-2:1996 ²
Electrical Safety	EN60065:2002

Notes:

- 1.This device may not cause harmful interference.
- 2.This device must accept any interference received, including interference that may cause undesired operation.

RECYCLING



This product and its packaging constitute the applicable product according to the WEEE directive. Please ensure that at the end of the working life of this product, it is disposed of sensibly in accordance with local and national recycling regulations. The packaging supplied with this product is recyclable. Please retain all packaging, however if disposing of this packaging please ensure that you comply with local recycling regulations. These products also all comply to the RoHS Directive 2002/95/EC.

1.0 - Introduction

Thank you for purchasing the MSE-218 high-power subwoofer from EM Acoustics. The MSE-218 has been designed and rigorously tested to give you the utmost in sonic performance and many years of reliable, trouble-free operation. Please take the time to read this user manual thoroughly to ensure you get the best performance from your system and to ensure you set it up correctly and safely. If you have any questions or are in any doubt whatsoever about any aspect of your new system, please do not hesitate to contact us directly or your local EM Acoustics representative.

The MSE-218 is one of the most accurate and powerful reflex subwoofers on the market today. The marriage of the utmost in drive unit technology with a rigorously designed and constructed enclosure creates an ideal solution to a variety of applications. MSE-218 loudspeakers can be deployed in a wide range of professional audio applications and will deliver stunning results time after time. Added to this is the one-to-one customer support that EM Acoustics is known for and you should be congratulated for purchasing one of the finest loudspeaker products on the market today.

This manual contains all the information you should need on topics of set up, connection, flying & stacking and basic service. If you feel we have missed anything, or you have a question not covered by this manual, please visit our website www.emacoustics.co.uk and send us a message or give us a call – we're only too happy to help.

Unpacking

Please take care when unpacking your loudspeaker system. Once unpacked, please inspect each enclosure thoroughly for any transit damage and in the case of any damage please notify your carrier immediately. It is the responsibility of you, the consignee, to instigate any claim. Please retain all original packaging in case of future re-shipment.

System Setup

Professional loudspeaker systems are potentially dangerous objects if used incorrectly. Please ensure that you read this section fully, and contact EM Acoustics or your local dealer should you be in any doubt over correct operation procedures.

Professional loudspeaker systems are capable of producing damage-inducing sound pressure levels, and hence care should be taken when setting your system up, particularly when it comes to loudspeaker placement within a venue. Damage to the ear can result from levels above 90dB under prolonged exposure.

2.0 – The MSE-218 Subwoofer



The MSE-218 is a high-power subwoofer system, designed to fulfil the most demanding applications where scalability and single-enclosure use are as important as sonic performance. The MSE-218 has been developed to answer a call from customers who don't always have the physical space available to use MSE-118 Quake subwoofers in significant numbers, yet still require impressive SPL and frequency response. MSE-218 subwoofers are inherently scalable – they can be used as single units, or in large numbers for filling arena or stadium shows. The substantial enclosure houses a pair of reflex-loaded 4.5" voice coil, 18" (457mm) neodymium LF cone drive units. Like all EM Acoustics products, headroom is key. Peak-to-peak linear cone travel is 28mm, meaning large amounts of low frequency information can be produced by a surprisingly small and lightweight subwoofer enclosure.

The MSE-218 requires an active crossover to function correctly – although the choice of filter points is very wide, allowing the user to tailor the response to exactly what is required. Cardioid DSP program settings are also available to create arrays with significant rejection to the rear of the subwoofers, by stacking three enclosures in a block (two facing forwards, one facing backwards).

The robust enclosure is constructed from premium 18mm (3/4") multi-laminate Birch plywood – rebated, screwed & glued together. The enclosure is finished in black textured paint as standard, however RAL colour matching as well as weather protection options are available if required. Due to the extremely high cone travel available, enclosure rigidity was key in the design - the baffle is made in total from five 18mm thicknesses of premium plywood. Runners are provided on the bottom of the enclosure to protect the paint finish when in use, and recesses on the top of the enclosure allow stable stacking of arrays. Eight steel bar handles and tour-grade castors are also fitted as standard. A pair of M20 threaded flange adapters are also provided in the top of the enclosure for mounting fullrange products above for compact systems. Lastly, a tough hex-punched grille protects the drive units from damage, which can be quickly removed for service purposes.

The MSE-218 subwoofer is designed and manufactured in our UK headquarters, and every unit is rigorously tested before they leave the factory.

3.0 - Cabling and Amplifier Selection

The MSE-218 subwoofer is designed to be used with professional power amplifiers providing the following power outputs:

MSE-218 4000W/channel **into two ohms**

A small power amplifier working too hard is more likely to damage a loudspeaker than a large power amplifier working within its operating range!

It is good practice to use an amplifier equal to the program power rating of the loudspeaker – so as to retain sufficient headroom and good dynamic range. Care should be taken during operation to avoid amplifier clipping – as this can cause serious damage to your loudspeakers. If in doubt, please contact your dealer who will be happy to assist you in correct amplifier choice and setup. EM Acoustics recommends the EM Acoustics AD-9 amplifier as the optimum solution for the MSE-218.

3.1 - Cabling

MSE-218 enclosures are supplied with Neutrik Speakon™ NL4 connectors wired pin 1+/1-.

Because the MSE-218 is a 2-ohm loudspeaker, cable insertion loss can become significant over long cable runs. As such, it is recommended only that cables with a conductor cross-section area of 2.5mm² or greater are used. The maximum cable lengths recommended for different conductor cross section areas are as follows:

2.5mm²: 26 metres

4.0mm²: 43 metres

6.0mm²: 64 metres

4.0 – MSE-218 subwoofers in use

4.1 - System Overview

MSE-218 subwoofers can be used either in landscape or portrait format, depending on space requirements. Landscape format is recommended as the touring skids on the underneath will protect the cabinet finish, and the stacking recesses can be used to add extra stability when stacking multiple units.

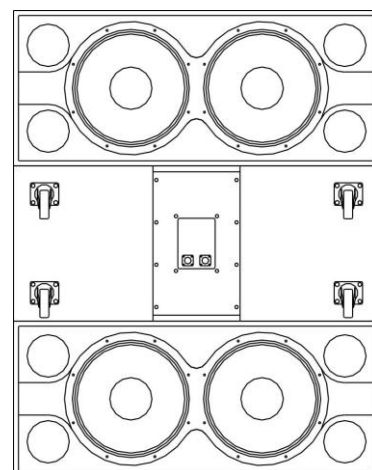
4.2 – Stacking MSE-218SP Enclosures

The touring skids and stacking recesses (on the bottom and top of the enclosure respectively) are intended to add extra stability to MSE-218 stacks. Wherever possible, the enclosures should be used in landscape format to use these skids and recesses, as the skids will protect the paint finish. The placement of the skids allows the subwoofers to be stacked with drive units facing either forwards or backwards to enable cardioid array creation.

4.3 – Creating Cardioid Arrays

By assembling a stack of three MSE-218 subwoofers, with the central unit facing backwards, a cardioid subwoofer array can be created which offers significant low frequency rejection to the rear and sides of the array. When using the MSE-218 in this way, the settings for the front and rear-firing subwoofers will be different. ***Please contact EM Acoustics for advice on appropriate settings, as these will depend on the amplifier and processors used.***

When using cardioid arrays, ensure at least 1 metre clearance is left behind the array between the subwoofers and any walls or other hard surfaces.



4.4 – Mounting fullrange products above the MSE-218

IMPORTANT SAFETY CONSIDERATIONS

Please pay careful attention when creating stacks of MSE-218 subwoofers or mounting fullrange products – either as stacks or using the M20 flange adapters. Ensure that the instructions in this manual are followed correctly – MSE-218 loudspeakers are heavy and incorrect use could result in injury. Ensure that the floor where the system is going to be placed is strong enough to withstand the total system weight placed upon it.

When assembling stacks of subwoofers, the use of ratchet straps to secure both the subwoofers and any fullrange loudspeakers stacked above is strongly recommended to reduce the risk of loudspeakers being shaken off the subwoofer and falling.

To use the M20 threaded flange adapters, use a telescopic distance pole such as the EM Acoustics DP-01. Screw the threaded end into the flange adapter, making sure it is screwed in completely. Then, carefully lift the fullrange loudspeaker onto the pole.

5.0 - Servicing Information

Your EM Acoustics loudspeakers have been rigorously tested before they leave our factory, to ensure that they give you a lifetime of flawless operation. Should any of your drive units fail and need replacing, please follow the guidelines below.

MSE-218: Low Frequency Drive Unit

1. Using a PZ2 Pozidrive screwdriver, undo the screws securing the front grille in place. Gently remove the grille from the front of the enclosure.
2. Using a 5mm Allen key, remove the eight M6 socket-head bolts holding the required drive unit in place. Gently lift the drive unit out of its locating hole – please take care as it is heavy! Carefully disconnect the cables from the drive unit.
3. To reinstate the driver, simply reverse the above procedure. Please observe the correct polarity – red cable to positive terminal, black cable to negative.
4. Reinstall the grille by gently placing it in place over the front of the loudspeaker. Replace the PZ2 screws to secure the grille in place.

Appendix A – Technical Specifications

MSE-218 high-power reflex subwoofer

ENCLOSURE TYPE:	dual drive unit bass reflex subwoofer
DIMENSIONS (HxWxD):	550 (21.7) x 1300 (51.2) x 850 (33.5) mm/(ins)
NET/SHIPPING WEIGHT:	104/107kg (228.8/235.4lbs)
FREQUENCY RESPONSE¹:	28Hz – 150Hz +/- 3dB
SENSITIVITY²:	100dB
DISPERSION³:	omnidirectional
DRIVE UNITS:	2 x 18" (457mm) neodymium LF cone drive units
POWER HANDLING:	2000W RMS, 4000W program
MAXIMUM SPL⁴:	137dB continuous, 143dB peak
NOMINAL IMPEDANCE:	2 ohms
CROSSOVER:	Active, recommended below 120Hz (24dB/Octave L-R)
CONNECTORS:	2 x Neutrik SpeakON™ NLT4MP
ENCLOSURE:	18mm (3/4") multi-laminate Birch plywood – rebated, screwed & glued. Finished in impact resistant textured paint
ENCLOSURE HARDWARE:	8 x flush handles 2 x M20 polemount socket for mid/high enclosures touring runners/stacking recesses tour-grade castors
GRILLE:	hex punched steel
OPTIONS:	Colours/Weather Protection
ACCESSORIES:	TC-218 padded touring cover
SPARE PARTS:	DU-1802 18" (457mm) neodymium drive unit RK-1802 recone kit RG-218 replacement steel grille

Notes on measurement conditions:

¹Measured on-axis at 2m in an anechoic environment and referenced to 1m.

²Measured in half space at 2m with 4W sine wave input and referenced to 1m.

³Nominal dispersion, measured in an anechoic environment and averaged over stated bandwidth

⁴Calculated and verified by subjective listening test of familiar program material.

Appendix B – Accessories & Spare Parts List

01A022	DU-1802	18" neodymium LF drive unit, 4 ohms
01C019	RK-1802	4 ohm recone kit for DU-1802
04A024	RG-218	Replacement steel grille
10E217	TC-218	Padded transit cover for MSE-218

Appendix C – Warranty Information

Limited Warranty

This EM Acoustics loudspeaker product is warranted to the original end-user purchaser and all subsequent owners for a period of **three years** from the original date of purchase.

Warranty Coverage

This warranty covers defects in materials and workmanship. It does not include:

- Damage or failure caused by accident, misuse, neglect, abuse or modification by any person other than an authorised EM Acoustics representative.
- Damage or failure caused by operating the loudspeaker product contrary to the instructions contained within this manual.
- Damage caused during shipment.
- Claims based on any misrepresentation by the seller.
- Products which contain anything other than the original components (or EM Acoustics factory supplied spare parts).
- Products on which the serial number has been removed, altered or defaced.

Returning your EM Acoustics loudspeaker

Should your EM Acoustics loudspeaker develop a fault, please return it (freight prepaid) in its original packaging, along with proof of purchase to your local dealer or to:

EM Acoustics (Returns Department), Building 74, Dunsfold Park, Cranleigh, Surrey, GU6 8TB, UK

including a description of the suspected fault. Serial numbers must be quoted in all correspondence relating to the claim. EM Acoustics or its representatives are in no way liable for any loss or damage in transit, and hence it is recommended that the sender insure the shipment. EM Acoustics will pay for return freight should the repair be covered under warranty.

EM Acoustics' liability is to the replacement or repair (at our discretion) of any defective components, and as such are not liable for any incidental and consequential damages including (without limitation) injury to persons, damage to property or loss of use.

This warranty is exclusive and no other warranty is expressed or implied. This warranty is also in addition to – and in no way detracts from – your statutory rights as a consumer.