



EMS-112 compact passive reflex subwoofer  
User Manual – v1.0



**EM Acoustics Loudspeakers**

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## INTRODUCTION

### Thank you

Thank you for purchasing a product from the acclaimed EMS Series from EM Acoustics. The EMS Series products have been carefully designed and rigorously tested to ensure years of flawless operation and unprecedented sonic quality. Flexibility is the key factor with EMS products, and consequently they are at home within a wide variety of applications from live and portable applications, through to cafes, bars, nightclubs, theatres and conference centres.

Please ensure that you read this manual carefully before use, and that you keep it to hand should you need it for further reference. Furthermore, should you have any difficulties please do not hesitate in contacting your EM Acoustics dealer, or email [info@emacoustics.co.uk](mailto:info@emacoustics.co.uk) for further assistance.

### Unpacking

Every EM Acoustics product is built to the highest standard and thoroughly tested before it leaves our factory. After unpacking your loudspeaker, please inspect it carefully for any signs of transit damage. If such damage is found, please notify the carrier at once to instigate a claim. It is suggested that you retain all packaging for future re-shipment.

## DECLARATION OF CONFORMITY



The products contained within this manual conform to the requirements of the EMC Directive 89/336/EEC, amended by 92/31/EEC and to 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

## 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.

## PRODUCT OVERVIEW

### EMS-112 compact passive reflex subwoofer



The EMS-112 is a compact, powerful subwoofer product designed to complement the smaller products within the EMS Series. The inclusion of a passive crossover network removes the requirement for external DSP processing for the subwoofer, but it also provides a separate high pass filtered output for fullrange enclosures. In this way, complete compact systems can be assembled without any processing whatsoever. A conventional link output is also provided.

The EMS-112 is suited to a wide variety of professional audio applications, from corporate and theatre use through to small-medium scale front of house or nightclub use.

The enclosure contains standard hardware you would expect from a professional loudspeaker – flush handles, M20 threaded polemount adapter, rubber feet and matching stacking recesses.

The EMS-112 is supplied as standard in black or white, and is fitted with three Neutrik SpeakON™ NL4MP connectors. Custom colours and weather protection can also be supplied if required – please contact your local EM Acoustics representative for more details.

## **SYSTEM SET-UP**

### Safety Considerations

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.

### Pole Mounting fullrange loudspeakers from the EMS-112

The EMS-112 can be support other loudspeakers using an M20 threaded pole adapter. When mounting in this way, please consider the following:

- Ensure your M20 pole is screwed tightly in place, the stand height is locked off and the system is stable.
- Check the weight loading of your poles before attempting to mount the loudspeaker.
- Do not stack a second loudspeaker on top of the stand-mounted one.
- Ensure cables are run so as to leave enough slack to enable neat wiring, and thus reduce the risk of the speaker being pulled over. Loose cables should be covered or taped down wherever possible to reduce trip hazards.
- If the system is being used outdoors, it may be necessary to add support to the system to prevent it toppling over.

### Ground Stacking

- Ensure that the floor or stage surface can withstand the weight of the system.
- Wherever possible, avoid high stacks and use ratchet straps to secure loudspeakers together. Please also remember that vibrations from subwoofer systems can shake other loudspeakers out of place, which may present a toppling hazard. The use of ratchet straps and non-slip material is recommended to prevent this.

## Cabling and Amplifier Selection

The EMS-112 is designed to be used with professional power amplifiers providing the following power outputs:

EMS-112                      1000W/channel **into eight 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.

## Cabling

The EMS-112 is supplied with Neutrik SpeakON™ NL4 connectors, wired pin 1+/1-. It is recommended that the resistance of your cable is less than one tenth of the nominal system impedance. Given below are the recommended maximum cable lengths for different cross-sections and impedances.

<b>Conductor Cross Sectional Area</b>	<b>Maximum Recommended Cable Length</b>		
	<i>4 ohms</i>	<i>8 ohms</i>	<i>16 ohms</i>
1.0mm <sup>2</sup>	11m	22m	44m
1.5mm <sup>2</sup>	17m	34m	68m
2.0mm <sup>2</sup>	22m	44m	88m
2.5mm <sup>2</sup>	29m	58m	116m
4.0mm <sup>2</sup>	44m	88m	176m
6.0mm <sup>2</sup>	66m	132m	264m

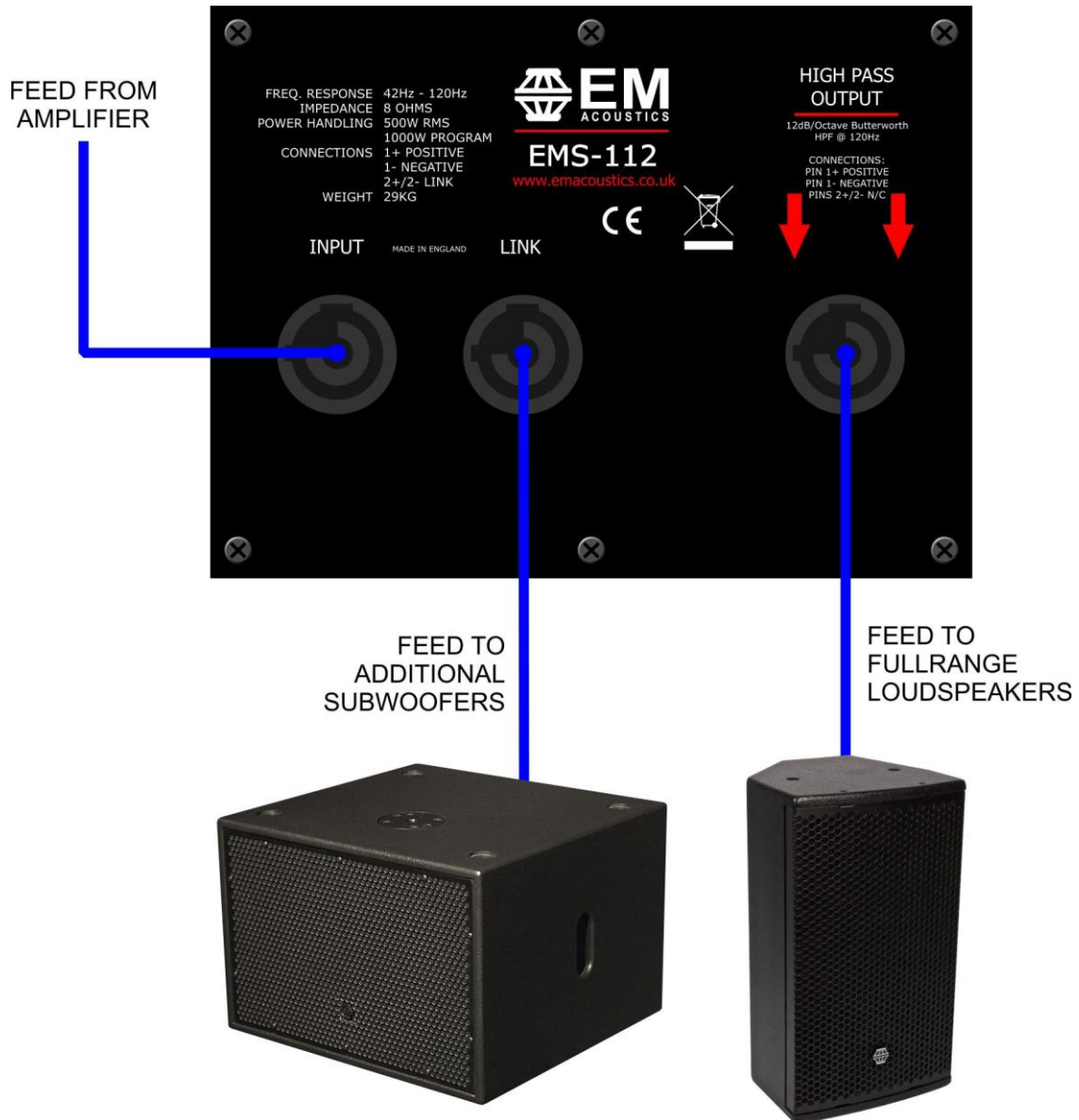
Pins 2+/2- on the SpeakON™ connectors are wired together to allow link-through with 4-core cables. The high pass output connector is wired on pins 1+/1-, with pins 2+/2- on this NL4 having no connection.

## DSP Settings

The EMS-112 requires no DSP processing to function correctly. In extreme SPL applications, additional protection can be given to the drive unit by applying a 24dB/Octave high pass filter at 35Hz, which will protect the drive unit from over excursion. If you are in any doubt over suitable settings for your EMS-112, please don't hesitate to contact EM Acoustics or your local dealer for support and advice.

### USE WITH OTHER PRODUCTS

The EMS-112 has an integral passive crossover network, which not only low-passes the signal going to the 12" drive unit, but also provides a high-passed output via the third NL4 connector for fullrange products as shown in the diagram below. The normal LINK output connector is wired pre-crossover, so this can be used to connect directly to other EMS-112 subwoofers, or to fullrange loudspeakers where you do not want to use the internal high pass filter.



## MAINTENANCE

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.

### EMS-112: Low Frequency Drive Unit

1. Using a PZ2 screwdriver, remove the pan-head screws that hold the front grille in place.
2. Using a 5mm Allen key, remove the eight M6 socket-head bolts holding the drive unit in place, and keep them safe – ensuring you have collected both the shake-proof and flat washers for each bolt. Gently lift the drive unit out of its locating hole – please take care as it is heavy – you may also need to use a screwdriver to carefully lever the drive unit out of its recess. 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. Replace the front grille, taking care to align the mounting holes correctly, before replacing the screws and re-tightening.



## **WARRANTY**

### 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.**

## APPENDIX A – TECHNICAL SPECIFICATIONS

EM Acoustics operates a continuous process of research and development, and as such reserves the right to alter specifications without notice.

### EMS-112

<b>ENCLOSURE TYPE:</b>	reflex-loaded subwoofer
<b>DIMENSIONS (HxWxD):</b>	360 (14.2) x 530 (20.9) x 500 (19.7) mm/(ins)
<b>NET/SHIPPING WEIGHT:</b>	30/32kg (66/70.4lbs)
<b>FREQUENCY RESPONSE<sup>1</sup>:</b>	42Hz – 120Hz +/- 3dB
<b>SENSITIVITY<sup>2</sup>:</b>	93dB
<b>DISPERSION<sup>3</sup>:</b>	omnidirectional
<b>DRIVE UNITS:</b>	1 x 12" (305mm) high excursion LF cone drive unit
<b>POWER HANDLING:</b>	500W RMS, 1000W program
<b>MAXIMUM SPL<sup>4</sup>:</b>	124dB continuous, 130dB peak
<b>NOMINAL IMPEDANCE:</b>	8 ohms
<b>CROSSOVER:</b>	internal passive low pass with high pass output
<b>CONNECTORS:</b>	3 x Neutrik SpeakON™ NL4MP
<b>ENCLOSURE:</b>	15mm (5/8") multi-laminate Birch plywood – rebated, screwed & glued. Finished in impact resistant textured paint
<b>ENCLOSURE HARDWARE:</b>	2 x flush handles 1 x M20 polemount socket for mid/high enclosures 4 x rubber feet & mating recesses
<b>GRILLE:</b>	hex punched steel
<b>OPTIONS:</b>	Colours/Weather Protection
<b>SPARE PARTS:</b>	DU-1204 12" (305mm) drive unit RK-1204 recone kit PX-112 replacement passive crossover network RG-112 replacement grille

#### **Notes on measurement conditions:**

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

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

<sup>3</sup>Nominal dispersion, measured in an anechoic environment and averaged over stated bandwidth

<sup>4</sup>Calculated and verified by subjective listening test of familiar program material.