M-10 compact passive stage monitor
User Manual – v1.0

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INTRODUCTION

Thank you

Thank you for purchasing the acclaimed M-10 stage monitor from EM Acoustics. The M-10 has been carefully designed and rigorously tested to ensure years of flawless operation and unprecedented sonic quality. EM Acoustics Monitors are designed to provide a smooth and coherent frequency and phase response, while having enough SPL capability where required – and consequently are equally at home for discreet classical or corporate applications, or in louder touring roles.

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 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 RANGE OVERVIEW

M-10 compact passive stage monitor

The M-10 is a compact, low-profile monitor loudspeaker designed for a wide variety of low to medium SPL applications. It features a high-power 10" (254mm) reflex loaded neodymium LF driver and a 1" (25mm) exit neodymium HF compression driver on a constant directivity waveguide which produces a coverage pattern of 80°H x 60°V. This wide dispersion pattern allows for smooth coverage over a wide area of a stage for low to medium level monitoring applications. These components are matched by an internal asymmetric passive crossover network for unprecedented sonic quality from a completely passive enclosure.

The M-10 has been designed with the lowest profile possible for maximum discretion on stage. As with all EM Acoustics full-range products, no active controller or programmed EQ is required for correct operation. For demanding applications, a 70Hz high pass filter is recommended to increase drive unit headroom however this is not essential for normal operation.

The M-10 features flush handles, multiple Neutrik Speakon™ NL4MP connectors and rugged construction.

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.

Cabling and Amplifier Selection

The M-10 is designed to be used with professional power amplifiers providing the following power outputs:

M-10 600W/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 M-10 supplied with Neutrik Speakon™ NL4 connectors, wired pin 1+/1- with 2+/2- as link-through. 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.

Conductor Cross Sectional Area	**Maximum Recommended Cable Length**		
	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

M-10 MONITORS IN USE

The M-10 monitors were designed to deliver unprecedented performance without the expensive requirement of active controllers and dual amplifier channels. They are intended for lower-SPL applications – small theatre, houses of worship and conference centres for example – where a general mix over a wide area is desired rather than intense "hotspots". Despite the small enclosure size and footprint, the M-10 still produces a very useable amount of low frequency information.

STAGE ORIENTATION

The HF unit in an M-10 is on the left-hand side as you look at the monitor. This is easily denoted as the badge in the grille sits over the 10" drive unit on the right. When arranging on stage, the position of an M-10 relative to other monitors on stage will affect the sound. We recommend experimenting to get the performance that suits you best, however having the monitors 50cm apart is a good place to start.

For drum fill applications, the M-10 can be stood on-end if required (badge at the bottom) and this will produce a coverage pattern of 60°H x 80°V.

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.

M-10: Low Frequency Drive Unit

1. Using a PZ2 screwdriver, undo the three countersunk machine screws on each side of the loudspeaker by the grille edge – this will allow you to remove the front grille.
2. Using a 4mm Allen key, remove the eight M5 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. You may find you need to insert a flat bladed screwdriver between the drive unit and recess to aid in lifting it out. 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. Reinstate the grille by positioning it in place and gently pressing it into position. The badge on the grille should sit over the 10" drive unit. Once the grille is in position, replace the six bolts finger-tight, before tightening again with a PZ2 screwdriver.

M-10: High Frequency Drive Unit

1. Using a PZ2 screwdriver, undo the three countersunk machine screws on each side of the loudspeaker by the grille edge – this will allow you to remove the front grille.
2. Using a 3mm Allen key, undo the four countersunk bolts holding the HF waveguide in place. Once these are removed, gently lift the waveguide out of the enclosure. Disconnect the cables and the drive unit is now free to be removed.
3. To remove the drive unit from the waveguide, undo the two nuts that attach the drive unit to the waveguide using a 10mm spanner.
4. To reinstate the drive unit, reconnect the cables (white cable to positive terminal, yellow cable to negative) and carefully replace the waveguide into its hole. Retighten the mounting bolts.
5. Reinstate the grille by positioning it in place and gently pressing it into position. The badge on the grille should sit over the 10" drive unit. Once the grille is in position, replace the six bolts finger-tight, before tightening again with a PZ2 screwdriver.

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.

M-10

Enclosure Type:	2-way passive, reflex loaded
Dimensions (HxWxD, mm/ins):	297/11.7 x 560/22 x 400/15.7
Net Weight:	17kg (37.4lbs)
Frequency Response (+/- 3dB):	70Hz – 20KHz
Sensitivity:	98dB, 1W/1m
Dispersion:	80°H x 60°V
Drive Units:	10" (254mm) neodymium LF cone drive unit
	1" (25mm) exit neodymium HF compression drive unit
Power Handling:	300W RMS, 600W Program
Maximum SPL:	122dB continuous, 128dB peak
Nominal Impedance:	8 ohms
Crossover:	asymmetric internal passive
Connectors:	2 x Neutrik Speakon™ NL4MPR
Enclosure:	15mm (5/8") Birch plywood
Grille:	hex-punched steel backed with acoustically transparent foam
Options:	Colours/Weather Protection
Spares & Accessories:	DU-1001 LF drive unit
	CDU-1002 HF compression drive unit
	RK-1001 recone kit
	RD-1002 replacement diaphragm
	RFG-M10 replacement foam/grille
	PX-M10 passive crossover network