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The Martin Experience

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Martin Audio – EMX2A System Controller



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	EN60065:1998

1 INTRODUCTION

Thank you for purchasing a Martin Audio EMX Series system controller. EMX controllers are used to optimise the performance of Martin EM Series loudspeaker systems in all modes of operation - whether full-range or with additional sub-bass. The EMX2A is dedicated to the 3-way EM186 full-range and the EM201 and EM251 sub-bass systems.

2 UNPACKING

Each Martin EMX controller is built to the highest standard and thoroughly inspected before it leaves the factory. After unpacking the unit, 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 unit can be repacked at a future date if necessary.

Please note that Martin Audio and its distributors cannot accept responsibility for damage to any returned product through the use of non-approved packaging.

3 MAINS CONNECTION

The EMX2A is provided with an IEC 320 type mains receptacle. It is supplied with a 2m mains lead terminated with a standard IEC 320 plug, which must be connected as below:

GREEN/YELLOW - EARTH • BROWN - LIVE • BLUE - NEUTRAL

Mains voltage tolerance $\pm 10\%$ on each setting.

Fuses type T semi delay 100-120V 500mA(L), 220-240V 250mA(L)

WARNING: The EMX2A controller must always be operated with the mains safety earth connected.

This equipment must be earthed.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
DO NOT EXPOSE TO RAIN
OR MOISTURE



It should not be necessary to remove any protective earth or signal cable shield connections.

To change the mains voltage, remove the rectangular fuse cap and replace it so that the correct voltage is indicated by the arrow on the body of the rectangle. The earth terminal on the IEC connector is permanently connected to the metal casing. The unit is supplied with the 0V electronic reference ground taken to the case via an internal 'signal ground' lead and space receptacle, which inserts a ground lift resistor when in the 'Earth Off' position. To connect the 0V electronic reference direct to the chassis ground, use a pair of pliers to pull off the space receptacle from the 'Earth Off' position and push it onto the 0V spade terminal (marked Earth On, on the PCB).

4 INPUT CONNECTIONS

EMX2A inputs are on female XLR type connectors and are electronically balanced. Pin 1 is normally open circuit but may be linked to sig 0V or chassis earth by inserting a link on the PCB. The signal is always applied between Pin 2 (hot +) and Pin 3 (cold -).

Always use 2-core + screen 'balanced' type signal leads, even for unbalanced circuits. The screen should be regarded as separate from the signal return, even if they are connected together at one end of the line.

For either balanced or unbalanced operation, always connect the signal between Pins 2 and 3. The input cable shield should be derived from the equipment which is sourcing the input provided that normal safety requirements are met (ie the mains earth is correctly connected).

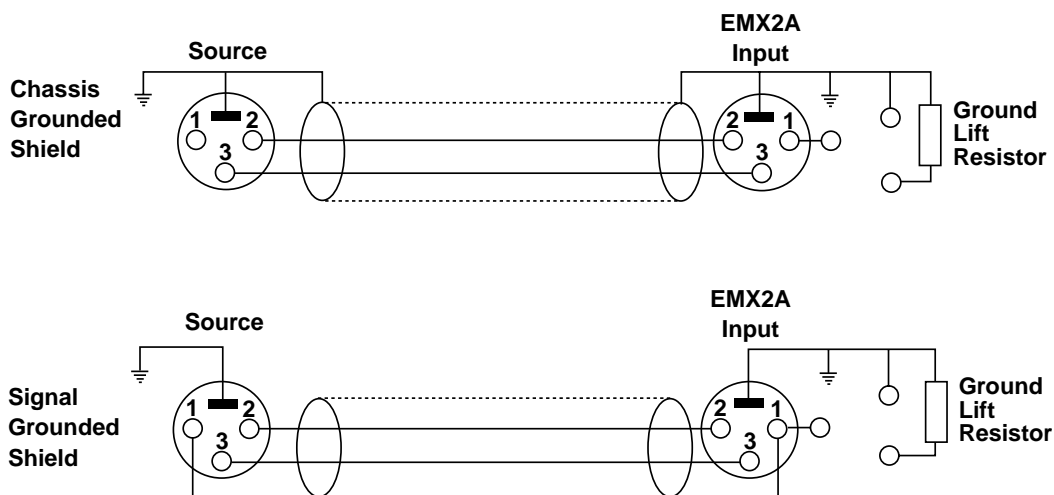


Fig. 1

5 OUTPUT CONNECTIONS

EMX2A outputs are electronically balanced auto compensating via male XLR type connectors. Pin 1 is the (ground) connection and the signal appears between Pins 2 and 3.

Always use 2-core + screen 'balanced' type signal leads, even for unbalanced circuits. The screen should be regarded as separate from the signal return, even if they are connected together at one end of the line. This is to keep the screen a true screen so that no signal return currents flow through it which can induce signals in adjacent cables.

For unbalanced use, having decided which pin is 'hot' (see above), connect the 'cold' pin and (Pin 1) together. The internal signal ground lead should be placed in the earth off position at the EMX2A outputs which permit the amplifier to be locally grounded (as required for safety reasons) without causing a hum loop. If the signal is merely taken between either Pin 2 or 3 and Pin 1, a level loss and signal degradation will occur.

For balanced operation, the screen should be connected to ground at the amplifier end. To eliminate ground current loops, it can be lifted at the EMX2A output, provided normal safety requirements have been met (ie the mains earths are correctly connected).

The power ratings of amplifiers connected to EMX Series controllers should lie within the range recommended for the EM Series loudspeaker system being driven. Please refer to the section on amplification in the EM Series user's guide for further information.

6 MODES OF OPERATION

The EMX2A is a 2-channel system controller which is recommended for use with the Martin Audio EM186 3-way loudspeaker system used either full-range or within additional Martin EM201 or EM251 sub-bass systems.

In its full-range mode, the EMX2A is a 2-in/4-out device providing full system equalisation and 650Hz electronic crossover functions to drive the separate low and mid/high sections of bi-amplified EM186 systems. It also features loudspeaker protection using limiters activated by the true voltages applied to the loudspeaker.

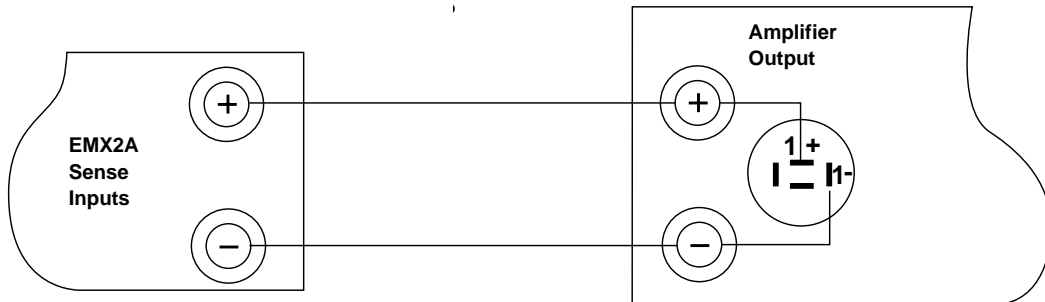
In its sub-bass mode, it is reconfigured automatically as a 2-in/6-out 120Hz and 650Hz electronic crossover which provides outputs for the sub-bass, low and mid/high sections. All six outputs are provided with sense inputs to monitor the actual loudspeaker drive voltages.

Sub-bass or full-range mode of operation is selected by a push switch on the front panel. It is important to note that the sub-bass outputs are always present at the sub-bass output connector, even when full-range operation is selected for the main system.

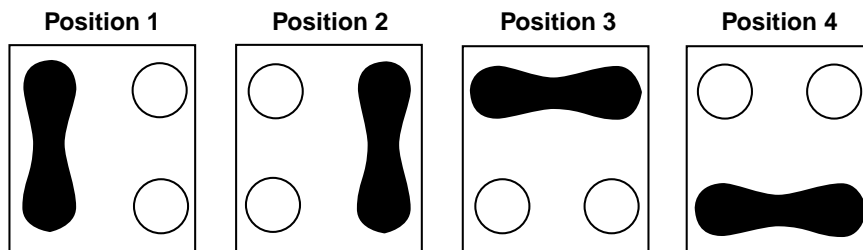
The EMX2A full-range mode normally provides separate outputs to the low and mid/high sections of the EM186 bi-amplified systems. For special applications, the EMX2A low frequency outputs can be switched to full-range by means of an internal PCB mounted slide switch.

7 SENSE INPUTS

Sense Input Connections



Variable Jumper Positions (see table on page 6)



Each EMX2A output has an associated limiter which provides momentary gain reduction when that output signal level exceeds a preset threshold. Internal PCB mounted jumper plugs J1 - J6 select the thresholds for the particular EM Series loudspeaker system being used.

Note: As supplied by the factory, jumper links J1-J6 are each set in the appropriate position for the EM186 full-range system and EM201 sub-bass powered with the recommended rating below. Should amplifiers of higher rating be used, the limiter positions shown in brackets should be used as indicated by the table below to increase the associated limiter thresholds.

The higher recommended power amplifier setting should only be used by experienced users to provide enhanced headroom on short duration peaks and should not be used to push the system for a continuous higher sound pressure level which **will result in drive unit failure**.

SYSTEM	OUTPUT	JUMPER	POSITION	AMPLIFIER POWER INTO 4 OHMS
EM186	LCH Bass	J3	2 (3)	500 (700) watts
	RCH Bass	J4	2 (3)	500 (700) watts
	LCH Mid/High	J5	2 (3)	400 (550) watts
	RCH Mid/High	J6	2 (3)	400 (550) watts
EM201/251	LCH1 Sub	J1	1 (2)	550 (900) watts
	RCH2 Sub	J2	1 (2)	550 (900) watts

Onset of limiting is indicated by front panel LED's and determined by sensing the actual voltage applied to the loudspeaker. The sense inputs on the rear panel should be connected as shown in Fig 3. If no sense connection is made or if the connection is broken at any time, the output level will automatically be attenuated by 20dB and the limit LED for the output concerned will light continuously to alert the operator.

Amplifier gain controls should normally be set at maximum. If a single EMX2A output is used to drive several amplifier channels with different gain settings, the sense input should be connected to the channel with the highest setting.

WARNING: Connections to the EMX2A sense sockets should only be made using approved shrouded plugs to comply with European safety standards. No other plug is recommended or endorsed.

8 HIGH FREQUENCY EQUALISATION

System specific high frequency equalisation is available to tailor the power response of EM Series high frequency devices. A PCB mounted slide switch switches the HF EQ in or out, depending on the particular EM Series loudspeaker system in use.

Recommended switch settings are as follows:

SYSTEM	HF EQ
EM186	IN

The EMX2A is supplied from the factory with the HF EQ switch in the IN position.

9 MONO SUB

A jumper link within the EMX2A (J7) may be positioned to mono-sum the sub-bass signal. A mono left and right signal will then appear on both the sub out XLR's.

10 LEVEL ADJUSTMENT (TRIM)

The full-range output level is set at a nominal 0dB gain. To balance the complete system, sub-bass levels can be adjusted by means of PCB mounted trim controls accessed with a small screwdriver through the front of the EMX2A.

11 WARRANTY

Martin Audio EMX2A System Controllers are warranted against manufacturing defects in materials or craftsmanship over a period of 1 year 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.

12 TECHNICAL SPECIFICATIONS

EMX2A

INPUTS (SIGNAL)	2 Electronically Balanced
IMPEDANCE	36K ohms (18K ohms per leg single ended)
CMRR	60dB 20Hz - 10KHz
CONNECTORS	3 Pin female XLR
INPUTS (SENSE)	6 Electronically Balanced
IMPEDANCE	36K ohms
CONNECTORS	Shrouded 4mm sockets
OUTPUTS	6 Electronically Balanced
SOURCE IMPEDANCE	47 ohms
MIN LOAD IMPEDANCE	500 ohms
MAX OUTPUT	+20dBu into 500 ohms limiter defeated
CONNECTORS	3 Pin Male XLR
FREQUENCY RESPONSE	-3dB @ 25Hz 12dB/octave -3dB @ 35KHz 12dB/octave
DISTORTION+NOISE	0.01%THD @ 2V output (limiters cancelled)
SIGNAL+NOISE/ NOISE RATIO	>97dB @ 2V output 20Hz - 20KHz quasi peak o/c input
LIMITERS	Individual for each channel. With program related attack times Ratio 20:1
INDICATORS	6 x Limit LED's. Sub/Full Range LED's
MAINS SUPPLY	IEC mains connector with integral fuse holder
MAINS VOLTAGE	Externally selectable on IEC inlet 100-120-220-240V AC, 50/60Hz. Voltage tolerance on each setting \pm 10%
MAINS FUSE	220-240V: -250mA Type 'T' (L) 100-120V: -500mA Type 'T' (L)
DIMENSIONS	(W) 482mm x (H) 45mm x (D) 211mm (W) 19ins x (H) 1.8ins x (D) 8.3ins
WEIGHT	3.5kg (7.7lbs)
SHIPPING DIMENSIONS	(W) 530mm x (H) 120mm x (D) 310mm (W) 21ins x (H) 4.7ins x (D) 12.2ins
SHIPPING WEIGHT	4.1kg (9lbs)

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

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ISSUE 2

EMX2A System Controller

User's Guide



ENGLISH



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