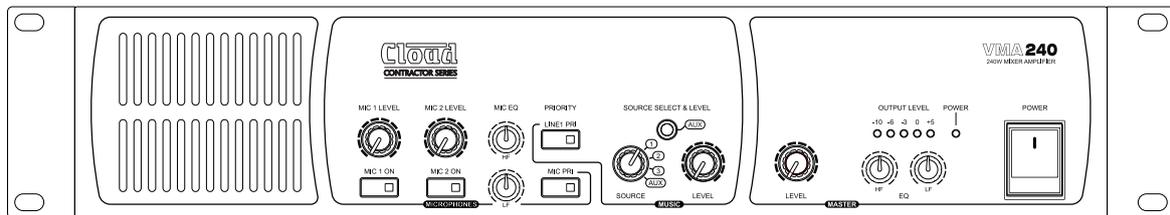


Cloud

CONTRACTOR SERIES

VMA SERIES MIXER-AMPLIFIERS MODELS VMA120 AND VMA240



INSTALLATION GUIDE

WARNING:

To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

CAUTION:

Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.

	<p>WARNING: SHOCK HAZARD – DO NOT OPEN AVIS: RISQUE DE CHOC ELECTRIQUE – NE PAS OUVRIR</p>
	<p>The lightning flash with the arrowhead symbol within an equilateral triangle, is intended to alert you to the presence of uninsulated dangerous voltages within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.</p>
	<p>The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.</p>

IMPORTANT SAFETY INSTRUCTIONS

1. Read these Instructions.
2. Keep these Instructions.
3. Heed all Warnings.
4. Follow all Instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding - type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12.  Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus, when a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



Do not expose the apparatus to dripping or splashing, and ensure that no objects filled with water, such as vases, are placed on the apparatus.

L'appareil ne doit être exposé aux écoulements ou aux éclaboussures et aucun objet ne contenant de liquide, tel qu'un vase, ne doit être placé sur l'appareil.



The mains plug is used as the disconnect device and it should remain readily accessible during intended use. In order to isolate the apparatus from the mains, the mains plug should be completely removed from the mains outlet socket.

Le prise du secteur ne doit pas être obstruée ou doit être facilement accessible pendant son utilisation. Pour être complètement déconnecté de l'alimentation d'entrée, la prise doit être débranchée du secteur.



This apparatus is of Class I construction and must only be connected to a mains outlet socket with a protective earthing connection.



Terminals marked with the ⚡ symbol may use Class 2 Wiring, but voltages at these terminals may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to these terminals requires installation by an instructed person or the use of pre-made leads or cords.

Safety Information

Safety Notes regarding Installation

- Do not expose the unit to water or moisture.
- Do not expose the unit to naked flames.
- Do not block or restrict any air vent.
- Do not operate the unit in ambient temperatures above 35°C
- Do not touch any part or terminal carrying the hazardous live symbol ⚡ while power is supplied to the unit.
- Do not perform any internal adjustments unless you are qualified to do so and fully understand the hazards associated with mains-operated equipment.
- The unit has no user-serviceable parts. Refer servicing to qualified service personnel.
- If the moulded plug is cut off the AC power lead for any reason, the discarded plug is a potential hazard and should be disposed of in a responsible manner.

Conformities

This product conforms to the following European EMC Standards:

EN 55032:2015 - Emissions

EN 55035:2017 - RF Immunity

EN 61000-3-3:2013 - Supply voltage tolerance

EN 61000-3-2:2018 - Harmonics

EN 62368-1:2018 - Electrical safety



Safety Considerations and Information

CloudVMA Series mixer-amplifiers must be earthed. Ensure that the mains power supply provides an effective earth connection using a three-wire termination.

Caution – High Voltage

Do not touch any part or terminal carrying the hazardous live symbol ⚡ while power is applied to the unit. Terminals to which the hazardous live symbol refers require installation by a qualified person.

Caution – Mains Fuse

Mains over-current protection is provided by the user-replaceable fuse in the IEC receptacle. Only replace this fuse with one of an identical type and rating:

	230 V versions	115 V versions
Fuse type	T2AH time-delay	T4AH time-delay
Fuse size	5 mm dia x 20 mm	
Fuse rating	2 A	4 A

Caution – Servicing

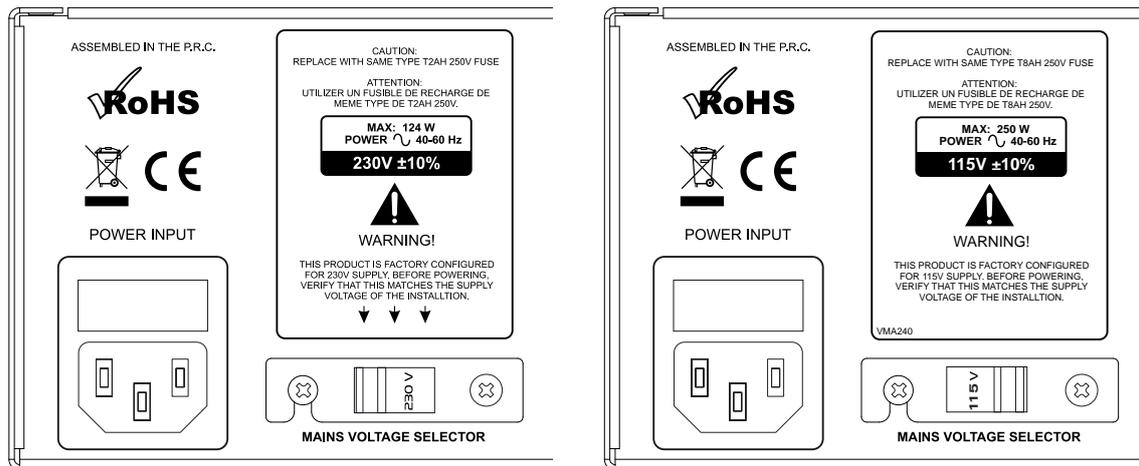
The unit contains no user-serviceable parts. Refer servicing to qualified personnel. Do not perform servicing unless you are qualified to do so. Disconnect the power cable from the unit before removing the top panel and do not make any internal adjustments with the unit switched on. Only reassemble the unit using bolts/screws identical to the original parts.

Important

Read this before connecting the amplifier to AC mains

VMA Series mixer-amplifiers are pre-configured at the factory to operate on either a 115V or a 230V AC mains supply. Before applying power to the unit, please check the rear panel to ensure that the version you have is correctly set for your local supply voltage.

The **MAINS VOLTAGE SELECTOR** switch on the rear panel will show either **230V** or **115V**, as shown below. The warning sticker above the switch will confirm the factory setting.



DO NOT CONNECT YOUR VA SERIES AMPLIFIER TO AN AC SUPPLY WITHOUT FIRST VERIFYING THE VOLTAGE SETTING.

Introduction

The Cloud VMA120 and VMA240 are cost-effective mixer-amplifiers for use in all types of commercial premises, such as pubs, bars, hotels and offices. They have been designed to be as simple to install and operate as possible, yet retain a useful range of configuration options.

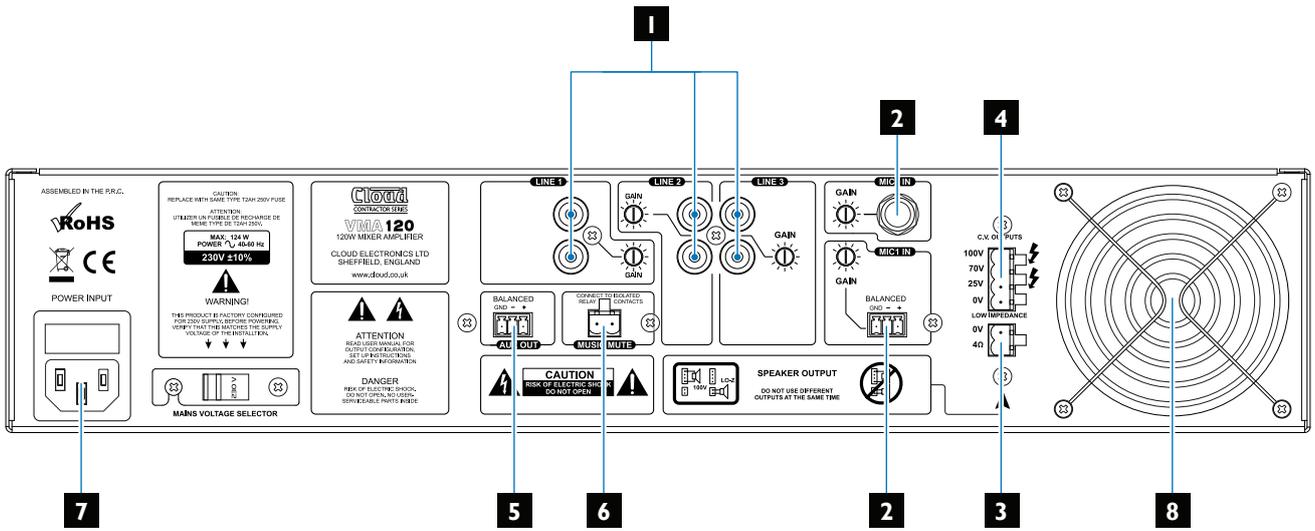
The units are mono power amplifiers combined with a simple mixer stage. The two models are identical in terms of facilities, and differ only in the maximum power output available – 120 W or 240 W respectively. They may be used to drive either low-impedance loudspeakers directly (4 ohms minimum) or 25/70/100 V-line loudspeaker distribution systems. The two different types of speaker system cannot be driven simultaneously.

The mixer stage has four stereo line inputs, including one in the form of a 3.5 mm jack socket on the front panel to permit the easy connection of laptops, tablets and similar devices. There are also two microphone inputs. Front panel switches allow the mics to have priority over music sources, and also for one line input to have priority over the others: this will be useful for connecting a message store, for example. All user controls are on the front panel.

The rear panel has connections for a music mute control input which can be used to mute all music sources in an emergency, and also a balanced auxiliary output to allow additional power amplifiers to be slaved.

The VMA120/240 have several internal PCB jumpers which may be moved to reconfigure certain aspects of the unit's operation. These include enabling microphone phantom power and LF filtering, selection of priority triggers as pre or post the level controls, and a selectable hi-pass filter for use with 25/70/100 V-line systems. See "Table of internal jumpers" on page 10 for a full list of functions.

Rear panel – connections and controls



VMA 120

- LINE 1, LINE 2 and LINE 3** – stereo line inputs on phono (RCA) connectors. Connect music sources (CD players, PCs, satellite/TV receivers, etc.) here; the stereo signals are summed internally to mono. Each input has an associated **GAIN** control with a range of 20 dB; adjust these so that each music source connected has approximately the same volume. **LINE 1** may be set to take priority over the other two – see [4] on front panel.
- MIC1 IN and MIC2 IN** – microphone inputs. Both inputs are balanced: MIC1 IN uses a 3-pin, 3.5 mm-pitch screw-terminal connector: see rear panel for pinout; a mating connector is supplied. MIC2 IN uses a 1/4" (6.35 mm) 3-pole TRS jack socket (T=hot, R=cold, S=screen). Each mic input has an associated **GAIN** control with a range of 40 dB: these should be adjusted so that the front panel **MIC LEVEL** controls can be turned to maximum without distortion or feedback occurring. 15 V phantom power is available at either/both mic inputs if needed, by moving internal jumpers – see “Table of internal jumpers” on page 10. The mic inputs may be set to take priority over the music sources – see [8] on front panel.

NOTE

 The two output connectors ([3] and [4] below) have a single removable safety cover which should be removed (two screws) to make the connections, and then refitted.

- LOW IMPEDANCE** output – amplifier output for driving low-impedance loudspeakers. The connector type is a 2-pin 5 mm-pitch screw-terminal type: a mating connector is supplied. If connecting multiple loudspeakers, installers must ensure that the total impedance is not less than 4 ohms.
- C.V. OUTPUTS** – amplifier output for driving 25/70/100V-line loudspeaker distribution systems. The connector type is a 4-pin 5 mm-pitch screw-terminal type: a mating connector is supplied. Only make connections to the 0V terminal and one other, depending on the voltage rating of the system in use. A 70 Hz high-pass filter limits the LF content to reduce the possibility of transformer core saturation: this filter may be bypassed if wished by moving an internal jumper, see “Table of internal jumpers” on page 10.



Do not attempt to make connections to this output while the mixer-amplifier is powered, as there may be voltages present at the terminals of sufficient magnitude to cause an electric shock.

IMPORTANT

Do not attempt to use both the **LOW IMPEDANCE** output and the **C.V. OUTPUTS** at the same time. Failure to observe this restriction is likely to result in permanent damage to the amplifier power stage.

5. **AUX OUT** – a balanced output on a 3-pin, 3.5 mm-pitch screw-terminal connector. See rear panel for pinout; a mating connector is supplied. This connector carries a line level signal derived from the output of the mixer stage and is suitable for connecting to the inputs of additional power amplifiers. The output is a mix of both music and microphone signals and will be affected by any priority settings. All the front panel **MICROPHONES** and **MUSIC** controls will affect the signal at the auxiliary output, but it is not affected by any of the **MASTER** controls..
6. **MUSIC MUTE** – a 2-pin, 5 mm-pitch screw-terminal connector. Shorting the pins together will mute the music content of the mixer-amplifier's outputs, including the Auxiliary Output, and Line Input 1 if Line 1 Priority is selected and currently active (see [4] on front panel). Microphones will remain active. Connecting **MUSIC MUTE** to a suitable pair of normally-open contacts on a fire alarm panel (or similar system) may aid compliance with local emergency regulations. If it is desirable to mute the microphone inputs as well as the music signal, an internal jumper can be moved to permit this: see "Table of internal jumpers" on page 10.
7. **POWER INPUT** – connect AC mains here using the cable supplied, which will have a mains plug suitable for your territory. Only use a 3-wire connection, to ensure the unit is earthed (grounded). The **POWER INPUT** connector incorporates a fuse holder – see page 4 for fuse data.
8. Fan – the VMA120 and VMA240 are forced-air cooled. Ensure there is adequate space at the rear of the chassis for airflow and that the fan is not obstructed. The internal protection circuitry incorporates temperature sensing, and the mixer-amplifier will shut down in the event of overheating.

Internal Settings



WARNING – DANGER

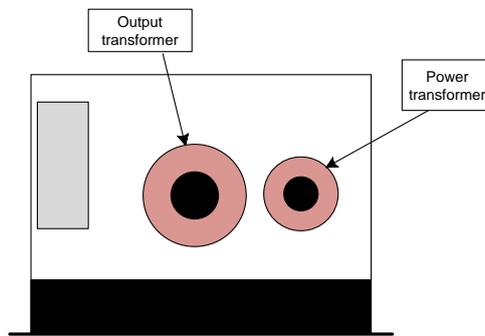
Changing the internal settings requires to open the unit. Prior to opening the unit, the unit shall be disconnected from any AC supply. Any work on an open unit shall be expedited only by qualified, certified personnel.

Output configuration (hi-voltage/low-impedance)

The output stage of a VMA Series mixer-amplifier may be configured EITHER for driving low impedance loudspeakers (4 ohms minimum), or for driving 25/70/100 V-line loudspeaker systems.

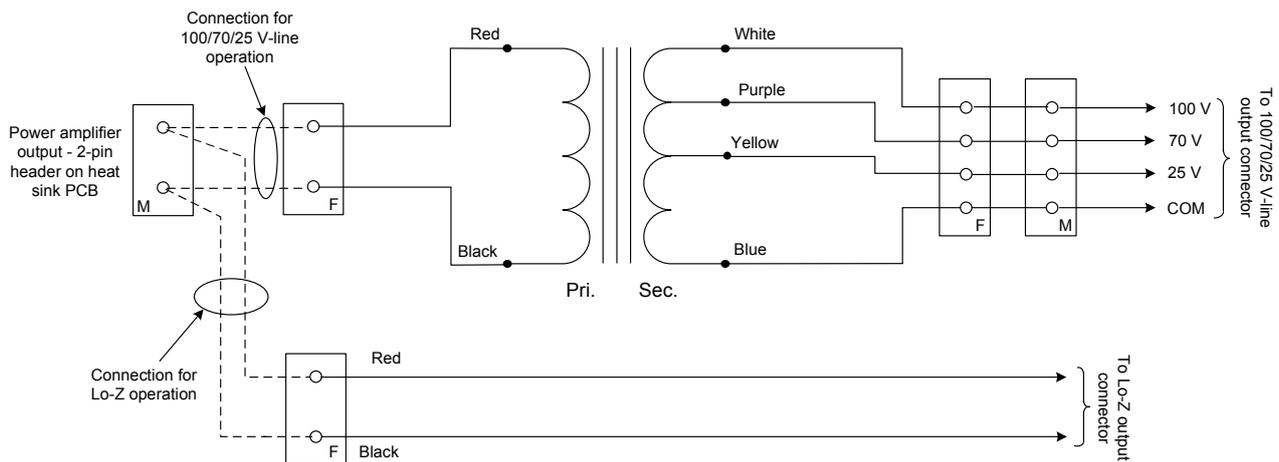
Units are shipped with the output configured for driving 25/70/100 V-line systems. To convert it for low-impedance operation:

- Disconnect the mixer-amplifier from the AC mains supply.
- Remove the top lid.
- The toroidal output transformer is the larger of the two:



VMA120/240

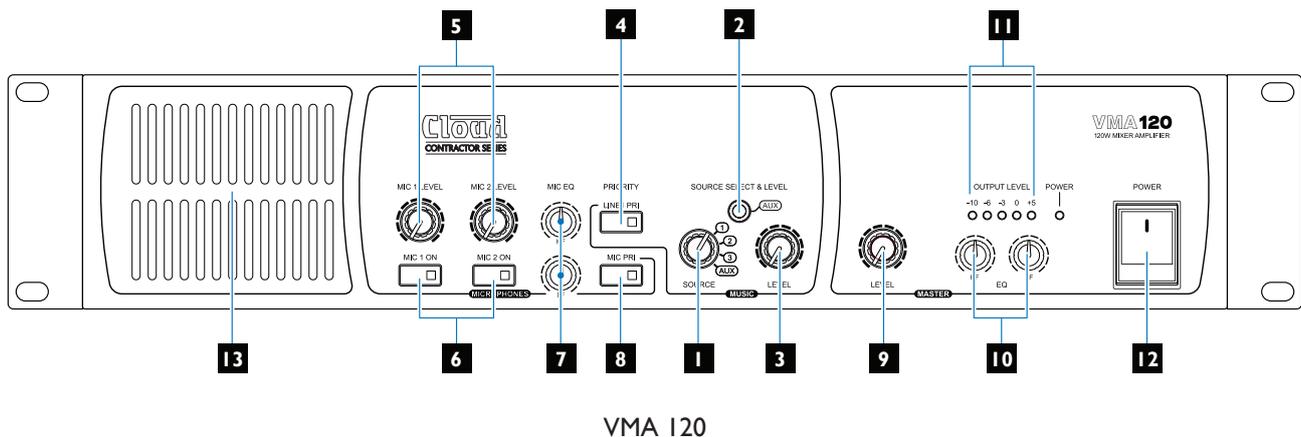
- The transformer's windings terminate in a pair of in-line, multipin connectors. The primary winding (red and black wires) terminates in a 2-pin female connector, and the secondary winding (blue, white, yellow and purple wires) terminates in a 4-pin female connector. Unplug the 2-pin connector from its header on the vertical PCB mounted on the heatsink at the left-hand side of the amplifier (viewed from the front). See diagram below:



- Identify the red and black pair of wires from the low-Z output terminals: these also terminate in a 2-pin female connector, currently unplugged. Plug this into the 2-pin header connector vacated in the previous step.
- Locate jumper J100 on the PCB mounted on the rear panel. This has two positions, ON and OFF. At shipment, it will be set to ON, placing the 70 Hz high-pass filter in circuit, which is the correct setting when the mixer-amplifier is used with 25/70/100 V-line systems. Using a pair of long-nosed pliers, move J100 to its OFF position.
- Replace the top lid.

If at any time it is necessary to convert the low-impedance output back to 25/70/100 V-line operation, reverse the above procedure, reconnecting the amplifier output to the transformer primary.

Front panel – connections and controls



VMA 120

1. **MUSIC SOURCE** – rotary switch, selects a music source from **LINE 1**, **LINE 2**, **LINE 3** or the adjacent **AUX** input [2].
2. **AUX** – 3.5 mm jack socket for the temporary connection of laptops, tablets, smartphones, etc. The socket is a TRS type, wired T= left, R = right, S = screen. This input has a fixed sensitivity of 0 dBu: match the volume of a source connected here against the other music sources by adjusting the output level of the connected device.
3. **MUSIC LEVEL** – sets the volume of the selected music source.
4. **LINE 1 PRI** – selecting this option gives a source connected to **LINE 1** automatic priority over the currently selected music source. This can be useful if an emergency message system, jukebox or similar source needs to form part of the audio system. The priority is triggered by the detection of a signal at Line 1 input; the music source will automatically switch to Line 1 while the signal is present. When it stops, the selected source will resume. The integral LED illuminates when the priority is enabled.
5. **MIC 1 LEVEL, MIC 2 LEVEL** – these controls set the volume for the microphone inputs **MIC 1** and **MIC 2** respectively.
6. **MIC 1 ON, MIC 2 ON** – press these switches to enable the microphone inputs **MIC 1** and **MIC 2** respectively. The integral LEDs illuminate to confirm that the mic is enabled. These switches provide a convenient means of muting a microphone not always in use without disturbing its level setting.
7. **MIC EQ** – the **LF** and **HF** controls form a simple tone control for the microphones, providing +/-10 dB of adjustment at 100 Hz and 5 kHz respectively. They affect both mic inputs, and should be adjusted for the greatest clarity through the audio system. How the mic inputs will be used (e.g., announcements, presentations, karaoke) should be borne in mind when setting the EQ controls.
8. **MIC PRI** – enabling microphone priority will cause the music to “duck” (reduce significantly in volume) as soon as a signal at either Mic Input 1 or Mic Input 2 is detected, to allow an announcement to be clearly heard, for example. The music will automatically resume its previous volume once the announcement is complete. The integral LED illuminates when the priority is enabled.
9. **MASTER LEVEL** – this sets the overall volume of the amplifier output, and affects the mix of music and microphone signals, as determined by the **MUSIC LEVEL** control [3] and **MIC LEVEL** controls [5].
10. **MASTER EQ** – adjust the LF and HF controls to optimise the mixer-amplifier’s output to suit the loudspeakers in use and the acoustics of the room where they are installed. Bear in mind the various types of programme material that the system may be used with.
11. **OUTPUT LEVEL** – a 5-LED bargraph meter that indicates the output level of the amplifier. The **MASTER LEVEL** control [9] should be adjusted so that the yellow 0 LED illuminates only on the loudest peaks of the music/microphone mix. If the red +5 LED flashes, the level is probably too high and the **MUSIC LEVEL**, **MIC LEVEL** or **MASTER LEVEL** controls should be turned down as appropriate.
12. **POWER** – turns the mixer-amplifier on and off. When it is on, the green **POWER LED** is illuminated.
13. **Air intake** – airflow through the mixer-amplifier is from front-to-back. Do not allow this vent to become blocked, as over-temperature will cause the protection circuitry to shut the amplifier down.

Block Diagram

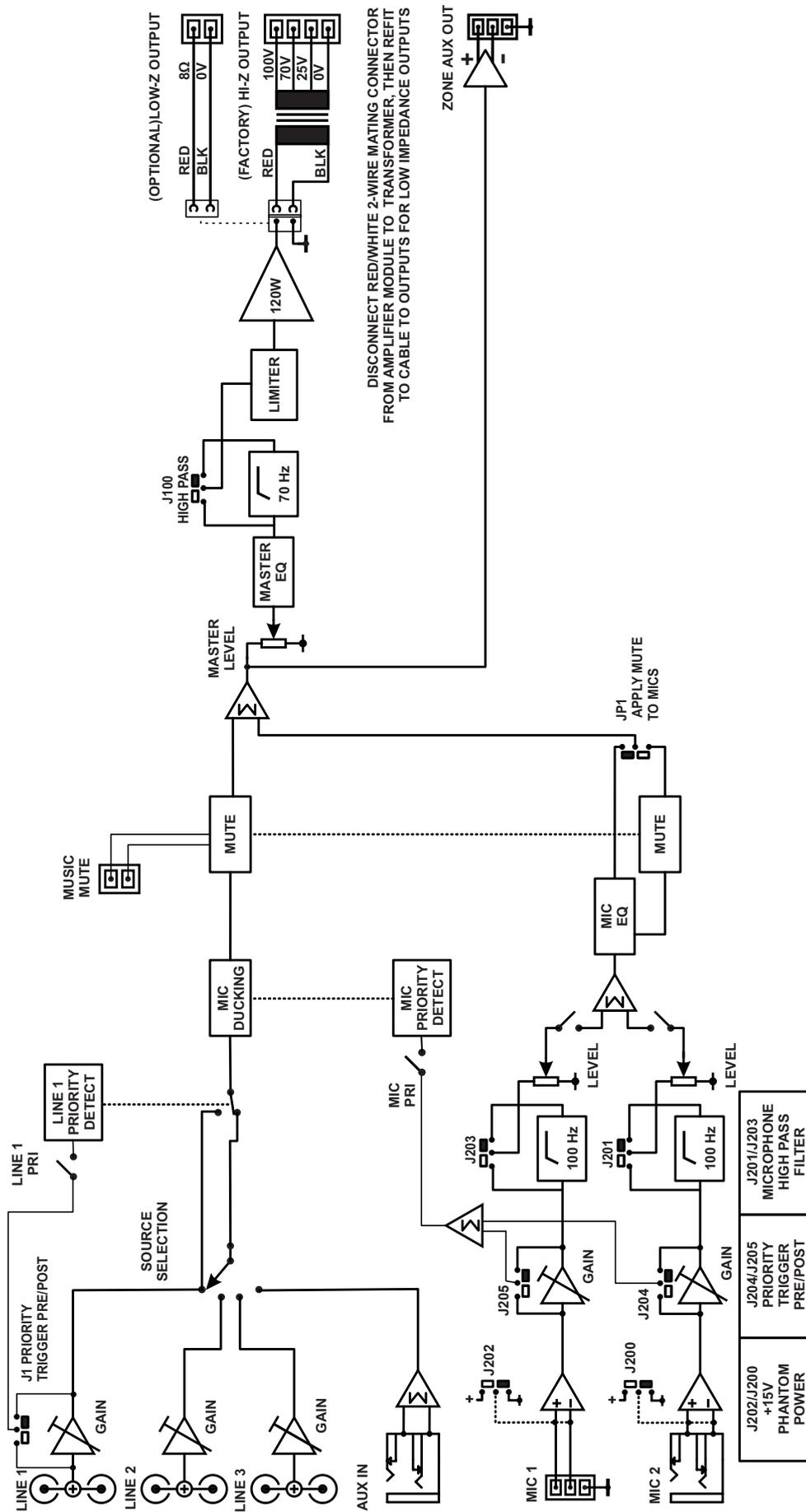


Table of internal jumpers

The VMA120 and VMA240 will function as required “out of the box” for the great majority of installations. However, there are various internal PCB jumpers which may be moved by the installer to enable certain additional functions or to modify the manner in which some features operate. These are summarised in the table below. In the “ACTION” column, the description in **bold** is that of the default (factory) setting.

LOCATION	JUMPER	FUNCTION	ACTION
Rear PCB	J202	Mic 1 phantom power	OFF: Mic 1 phantom power off ON: 15 V phantom power available at Mic 1 input
	J200	Mic 2 phantom power	OFF: Mic 2 phantom power off ON: 15 V phantom power available at Mic 2 input
	J203	Mic 1 hi-pass filter	OFF: Mic 1 input has full LF frequency response ON: Mic 1 input LF frequency response is rolled off below 100 Hz
	J201	Mic 2 hi-pass filter	OFF: Mic 2 input has full LF frequency response ON: Mic 2 input LF frequency response is rolled off below 100 Hz
	J205	Mic 1 priority trigger source	PRE: Mic 1-over-music priority is triggered by Mic 1 pre-GAIN signal POST: Mic 1-over-music priority is triggered by Mic 1 post-GAIN signal
	J204	Mic 2 priority trigger source	PRE: Mic 2-over-music priority is triggered by Mic 2 pre-GAIN signal POST: Mic 2-over-music priority is triggered by Mic 2 post-GAIN signal
	J1	Line 1 priority trigger source	PRE: Line 1 priority is triggered by Line 1 pre-GAIN signal POST: Line 1 priority is triggered by Line 1 post-GAIN signal
Front PCB	J100	70 Hz hi-pass filter	OFF: the power amplifier stage has full frequency response ON: the power stage LF frequency response is rolled off below 70 Hz
	JPI	Music Mute function	OFF: Shorting the Music Mute contacts will mute the currently active music source ON: Shorting the Music Mute contacts will mute the mixer-amplifier output entirely

If it is necessary to move any of the jumpers, first ensure that the mixer-amplifier is disconnected from the AC power supply before removing the lid.

Technical Specifications

Line Inputs				
Frequency Response	20 Hz to 20 kHz, ± 1 dB			
Gain range	0 dBu to +20 dBu			
Input impedance	47 kohms			
Noise	<-82 dB (22 kHz bandwidth)			
Equalisation	LF: ± 10 dB @ 50 Hz HF: ± 10 dB @ 10 kHz			
Microphone Inputs				
Frequency Response	-3 dB @ 100 Hz (fixed filter) to 20 kHz, ± 1 dB			
Gain range	2.45 mV (-50dBu) to 245 mV (-10 dBu)			
Input Impedance	3.3 kohms (balanced)			
Phantom Power	15 V, switchable per-input by jumpers			
Noise (EIN)	-125 dBu (20 Hz to 22 kHz bandwidth, max gain, $R_s = 150$ ohms)			
Equalisation	LF: ± 10 dB @ 100 Hz; HF: ± 10 dB @ 5 kHz			
Main Output				
Output Power (1 kHz continuous sine wave)	VMA120	120 watts		
	VMA240	240 watts		
Minimum load	Low-Z output	4 ohms		
	High-Z output	25 V-line	VMA120	5.2 ohms
			VMA240	2.6 ohms
		70 V-line	VMA120	41 ohms
			VMA240	20 ohms
	100 V-line	VMA120	83 ohms	
VMA240		41 ohms		
Frequency response	Low-Z output	20 Hz to 20 kHz, ± 1 dB		
	High-Z output	20 Hz to 20 kHz, ± 1 dB (70 Hz filter off)		
THD + N	< 0.08% @ 1 kHz			
Protection	Fixed level signal limiter: DC and over-temperature protection			
Auxiliary Output				
Nominal output level	0 dBu (0.775 Vrms), balanced			
Noise	<-82 dB, 22 kHz bandwidth			
General				
Power input	Selectable 115 VAC or 230 VAC, $\pm 10\%$; 45 – 65 Hz			
Fuse details	5 x 20 mm, time delay	230 V models	2 A	
		115 V models	4 A	
Normal operating temperature	0 °C to 35 °C (Note: performance and specifications cannot be guaranteed outside of this range)			
Cooling	Forced air cooling, 80 mm dia. fan; airflow front-to-back			
Power Consumption	Idle ²	VMA120	13.5 W (19.2 VA)	
		VMA240	15.5 W (20.5 VA)	
	1/8 th Power ³	VMA120	88.6 W (119.7 VA)	
		VMA240	188.5 W (251.3 VA)	
	1/3 rd Power ⁴	VMA120	136.5 W (177.7 W)	
		VMA240	252.1 W (330 VA)	
Heat Loss	Idle ²	VMA120	48.7 KJ/hr (46.1 BTU/hr)	
		VMA240	55.8 KJ/hr (52.9 BTU/hr)	
	1/8 th Power ³	VMA120	276 KJ/hr (262 BTU/hr)	
		VMA240	548 KJ/hr (519 BTU/hr)	
	1/3 rd Power ⁴	VMA120	407 KJ/hr (386 BTU/hr)	
		VMA240	665 KJ/hr (630 BTU/hr)	
Dimensions (W x H x D)	Net	482.6 mm x 88 mm (2U) x 267 mm 19" x 3.5" (2U) x 10.5"		
	Shipping (Gross)	535 mm x 185 mm x 350 mm 21.1" x 7.3" x 13.8"		
Weights	Net	VMA120	7.9 kg / 17.7 lbs	
		VMA240	9.6 kg (22.2 lbs)	
	Shipping (Gross)	VMA120	8.7 kg / 19.5 lbs	
		VMA240	10.5 kg (23.5 lbs)	

Notes re Power Consumption and Heat Loss measurements:

All measurements at 230 VAC 50 Hz power input

1. Idle: amplifier active, but no audio output
2. 1/8th Power: constant sound level at one-eighth maximum rated output per channel (audio mainly clean, only occasional clipping)
3. 1/3rd Power: constant sound level at one-third maximum rated output per channel (audio beginning to become compressed, limited or heavily clipped)

Wiring

(Phoenix to various cable connections)

