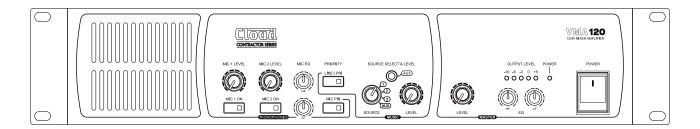
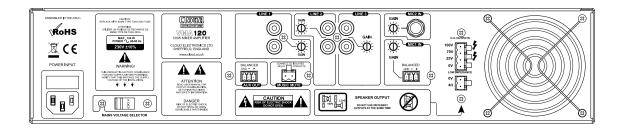
VMA CONTRACTOR SERIES MIXER-AMPLIFIERS



MODELS:VMA120,VMA240





VMA120 illustrated: Model VMA240 is identical

General Description

The Cloud VMA120 and VMA240 are cost-effective mixer-amplifiers for use in all types of commercial premises. They have been designed to be as simple to install and operate as possible, but offer a useful range of features and 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 – $120\,\mathrm{W}$ 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. A high-pass filter, selectable by internal jumper, minimises the effect of transformer saturation at low frequencies when driving $25/70/100\,V$ -line systems.

The units have four stereo line inputs (typically for connection of music sources), including an AUX input 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. Two balanced microphone inputs are also provided: phantom power is available at each, selectable by internal jumper. A high-pass filter for each mic input may also be selected by internal jumper: this reduces the effects of handling and breath noise. All mic and line inputs (except the AUX input) have a preset-type gain control adjacent to the input connectors on the rear panel.

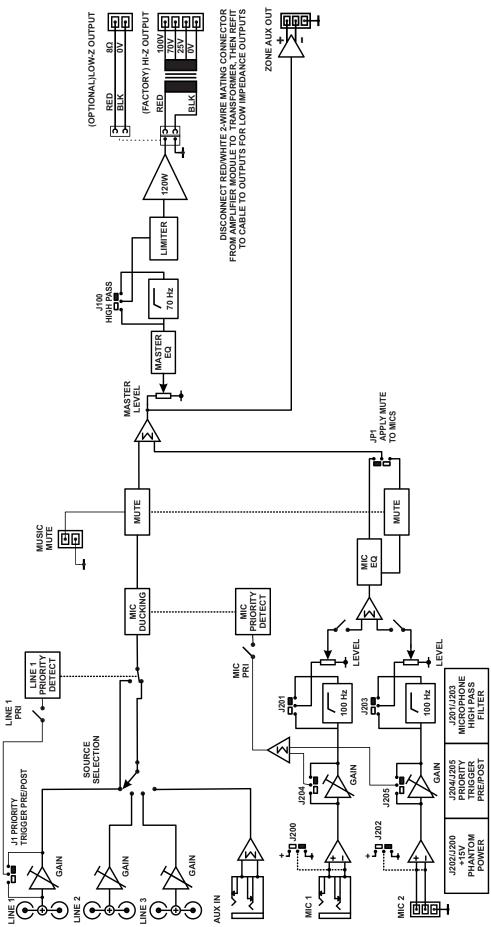
The front panel has rotary controls for line input selection, music level, the level of each mic input, and LF/HF EQ adjustment for the summed mic inputs. Two switches enable priority options: one allows the mic inputs to have priority over music sources to permit announcements, the other gives one line input priority over all others: this is useful for connecting a jukebox or message store, for example. Two further switches enable/disable each mic input. The front panel controls also include a master level control and HF/LF EQ adjustment for the main output.

The rear panel has a music mute control input which can be used to mute all music sources in an emergency: an internal jumper allows this to also mute the mic inputs if wished. There is also a balanced auxiliary output to allow additional power amplifiers to be slaved.

VMA Series: main features:

- · Industrial quality mixer-amplifiers
- Power output: I20 W/channel (VMA120) or 240 W/channel (VMA240)
- Outputs suitable for either low-impedance (min. 4 ohm) or 25/70/100 V-line systems
- Four stereo unbalanced line inputs (3 x RCA jack pairs, I x 3.5 mm TRS jack on front panel)
- Rear panel line inputs have individual gain controls
- Two balanced mic inputs (I x multipin connector, I x 1/4" TRS jack), with individual preset gain controls
- Front panel controls for mic and music levels, line input selection, mic EQ, master level and EQ
- · Mic input mute switches on front panel
- Line I priority, enabled by front panel switch
- Mic-over-music priority, enabled by front panel switch
- I5V phantom power available at either mic input (selected by internal jumper)
- 100 Hz high-pass filter on each mic input (selected by internal immer)
- 70 Hz high-pass filter in output stage, for use with 25/70/100 V-line systems
- Fixed limiter prevents clipping
- Front panel LED bargraph indicates output signal level
- Over-temperature and output DC protection
- 230 V or 115 V operation
- Forced-air cooling

Block Diagram





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 | E1. 210 dB @ 30 112 111 . 21 | O GD GG TO KITZ | | | | |
| Frequency Response | -3 dB @100 Hz (fixed filter |) to 20 kHz +1 dB | | | | |
| Gain range | 2.45 mV (-50dBu) to 245 m | | | | | |
| Input Impedance | | 3.3 kohms (balanced) | | | | |
| Phantom Power | 15 V, switchable per-input by | / iumpore | | | | |
| Noise (EIN) | -125 dBu (20 Hz to 22 kHz | | n Rs = 150 ohr | me) | | |
| Equalisation | LF: ±10 dB @ 100 Hz; HF: ± | | 11, 13 – 150 0111 | 1113) | | |
| Main Output | E1 : ±10 dB @ 100 112,111 : ± | 10 db (g 3 Ki iz | | | | |
| Output Power | VMA120 I20 watts | | | | | |
| (1 kHz continuous sine wave) | VMA240 | 240 watts | | | | |
| (1 Ki iz continuous sine wave) | Low-Z output | 4 ohms | | | | |
| Minimum load | Low-Z output | 7 011115 | VMA120 | Т | 5.2 ohms | |
| | | 25 V-line | VMA240 | | 2.6 ohms | |
| | | | VMA120 | | 41 ohms | |
| | High-Z output | 70 V-line | VMA240 | | 20 ohms | |
| | | | VMAI20 | | 83 ohms | |
| | | | VMA240 | | | |
| | Low 7 autout | | | | 41 ohms | |
| Frequency response | Low-Z output | | o 20 kHz, ±1 dB | | | |
| THD + N | | High-Z output 20 Hz to 20 kHz, ±1 dB (70 Hz filter off) | | | | |
| | < 0.08% @ 1 kHz | ~ | 4 + | | | |
| Protection | Fixed level signal limiter: DC | and over-tempera | ture protection | <u>1</u> | | |
| Auxiliary Output | 0.40. (0.775)() | | | | | |
| Nominal output level | 0 dBu (0.775 Vrms), balance | | | | | |
| Noise | <-82 dB, 22 kHz bandwidth | | | | | |
| General | C | /A.C. + 100/_ 4E 4E | 1.1 | | | |
| Power input | Selectable 115 VAC or 230 | | | | | |
| 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 | F 1 : 1: 00 | ia. fan; airflow front-to-back | | | | |
| | Forced air cooling, 80 mm c | lia. fan; airflow front | -to-back | | | |
| | | lia. fan; airflow front VMA I 20 | :-to-back 13.5 W (19 | 2.2 VA) | | |
| | Idle ² | | | | | |
| D. C. C | Idle ² | VMA120 | 13.5 W (19 | .5 VA) | | |
| Power Consumption | | VMA120 VMA240 | 13.5 W (19 15.5 W (20. | 5 VA) 9.7 VA) | | |
| Power Consumption | Idle ² I/8 th Power ³ | VMA120 VMA240 VMA120 | 13.5 W (19 15.5 W (20. 88.6 W (11 | 5VA) 9.7VA) 51.3VA) | | |
| Power Consumption | Idle ² | VMA120 VMA240 VMA120 VMA240 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 | 5 VA) 9.7 VA) 51.3 VA) 77.7 W) | | |
| Power Consumption | Idle ² I/8 th Power ³ I/3 rd Power ⁴ | VMA120 VMA240 VMA120 VMA240 VMA120 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 | 5 VA) 9.7 VA) 51.3 VA) 77.7 W) | | |
| Power Consumption | Idle ² I/8 th Power ³ | VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (| 5VA) 9.7VA) 51.3VA) 77.7W) 30VA) (46.1 BTU/hr) | | |
| · | Idle ² I/8 th Power ³ I/3 rd Power ⁴ Idle ² | VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (55.8 KJ/hr (1) | 5VA) 9.7VA) 51.3VA) 77.7W) 30VA) (46.1 BTU/hr) 52.9 BTU/hr) | | |
| Power Consumption Heat Loss | Idle ² I/8 th Power ³ I/3 rd Power ⁴ | VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA240 VMA240 VMA240 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (55.8 KJ/hr (276 KJ/hr (| 5VA) 9.7VA) 51.3VA) 77.7W) 30VA) (46.1 BTU/hr) | | |
| · | Idle ² I/8 th Power ³ I/3 rd Power ⁴ Idle ² I/8 th Power ³ | VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA120 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (55.8 KJ/hr (55. | 5VA) 9.7VA) 51.3VA) 77.7W) 30VA) (46.1 BTU/hr) 52.9 BTU/hr) 262 BTU/hr) | | |
| · | Idle ² I/8 th Power ³ I/3 rd Power ⁴ Idle ² | VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (55.8 KJ/hr (548 KJ/hr (548 KJ/hr (540 KJ/hr (| 5VA) 9.7VA) 51.3VA) 77.7W) 30VA) (46.1 BTU/hr) 52.9 BTU/hr) 262 BTU/hr) 386 BTU/hr) | | |
| Heat Loss | Idle ² I/8 th Power ³ I/3 rd Power ⁴ Idle ² I/8 th Power ³ | VMA120 VMA240 VMA240 VMA120 VMA120 VMA120 VMA240 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (13 48.7 KJ/hr (15 55.8 KJ/hr (15 407 KJ/hr (15 407 KJ/hr (16 665 KJ/hr (16 mm (2U) x 26 | 9.7 VA) 9.7 VA) 51.3 VA) 77.7 W) 30 VA) (46.1 BTU/hr) 52.9 BTU/hr) 262 BTU/hr) 386 BTU/hr) 630 BTU/hr) | | |
| · | Idle ² I/8 th Power ³ I/3 rd Power ⁴ Idle ² I/8 th Power ³ I/3 rd Power ⁴ | VMA120 VMA240 VMA240 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA120 VMA240 VMA240 VMA240 VMA240 VMA240 VMA240 VMA240 VMA240 VMA240 VMA240 VMA240 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (5 55.8 KJ/hr (5 407 KJ/hr (5 407 KJ/hr (6 665 KJ/hr (6 mm (2U) x 26 x 10.5" | 5VA) 9.7VA) 51.3VA) 77.7W) 30VA) (46.1 BTU/hr) 52.9 BTU/hr) 262 BTU/hr) 519 BTU/hr) 386 BTU/hr) 630 BTU/hr) 7 mm | | |
| Heat Loss Dimensions (W x H x D) | Idle ² I/8 th Power ³ I/3 rd Power ⁴ Idle ² I/8 th Power ³ I/3 rd Power ⁴ Net | VMA120 VMA240 VMA240 VMA240 VMA120 VMA240 482.6 mm x 88 19" x 3.5" (2U) 535 mm x 185 21.1" x 7.3" x VMA120 | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (5 276 KJ/hr (5 407 KJ/hr (6 mm (2U) × 26 1× 10.5" mm × 350 mm 13.8" | 5 VA) 9.7 VA) 51.3 VA) 77.7 W) 30 VA) (46.1 BTU/hr) 52.9 BTU/hr) 262 BTU/hr) 519 BTU/hr) 386 BTU/hr) 7 mm | | |
| Heat Loss | Idle ² I/8 th Power ³ I/3 rd Power ⁴ Idle ² I/8 th Power ³ I/3 rd Power ⁴ Net Shipping (Gross) | VMA120 VMA240 VMA240 VMA240 VMA120 VMA120 VMA120 VMA240 VMA120 VMA240 VMA240 VMA240 VMA240 VMA240 VMA240 Somm x 88 19" x 3.5" (2U) 535 mm x 185 21.1" x 7.3" x | 13.5 W (19 15.5 W (20. 88.6 W (11 188.5 W (25 136.5 W (1 252.1 W (33 48.7 KJ/hr (5 276 KJ/hr (5 407 KJ/hr (6 407 KJ/hr (6 mm (2U) × 26 0 × 10.5" mm × 350 mm 13.8" 7.9 9.6 | 5 VA) 9.7 VA) 51.3 VA) 77.7 W) 30 VA) (46.1 BTU/hr) 52.9 BTU/hr) 262 BTU/hr) 519 BTU/hr) 386 BTU/hr) 530 BTU/hr) | | |

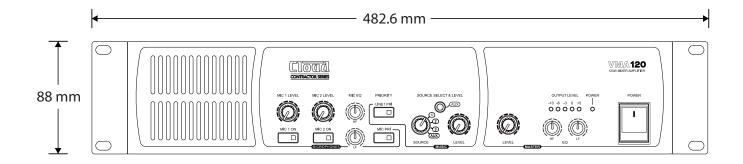
Notes re Power Consumption and Heat Loss measurements:

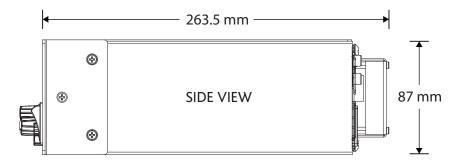
All measurements at 230 VAC 50 Hz power input

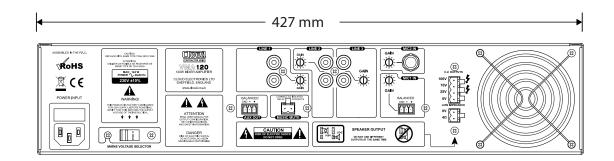
- I. Idle: amplifier active, but no audio output
- 2. I/8th. Power: constant sound level at one-eighth maximum rated output per channel (audio mainly clean, only occasional clipping)
- 3. I/3rd. Power: constant sound level at one-third maximum rated output per channel (audio beginning to become compressed,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



Dimensions

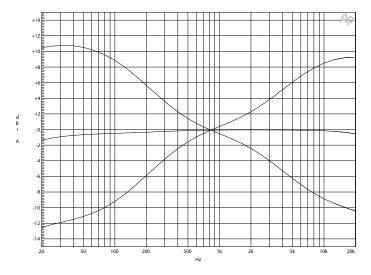




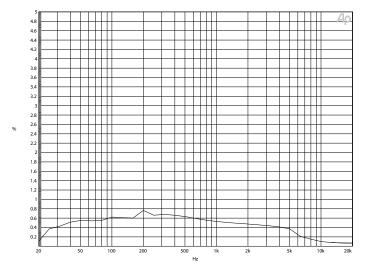




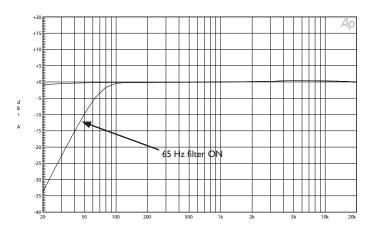
Performance Graphs



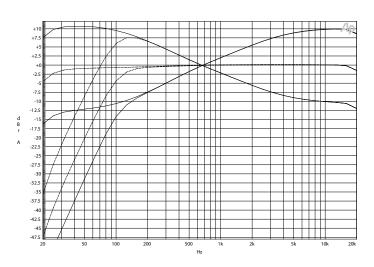




THD + Noise



Frequency response



Mic frequency response



Architect's and Engineer's Specification

The mono mixer-amplifier shall be equipped with four unbalanced stereo music inputs: three of these shall be on phono sockets (RCA jacks) and one on a 3.5 mm 3-pole jack socket which shall be accessible from the front of the unit. The mixer-amplifier shall have two balanced microphone inputs on detachable multipin connectors. The music input to be used shall be selected by a four-position front panel rotary switch. The two mic inputs shall be mixed to a mono signal and summed with a mono (L+R) sum of the selected music input. Each mic input shall have its own front panel level control. It shall be possible to control the level of the music source independently of the mic levels. Each music input and each mic input shall also have a rear panel gain control: the front panel music input need not meet this requirement. Two-band equalisation adjustment shall be provided on the front panel for the summed microphone signals. The front panel shall also be provided with a master level control and two-band equalisation: these controls shall affect the final mixed output. Visual indication of output signal level shall be provided on the front panel by not less than five LEDs: the LEDs indicating the two highest levels shall be orange and red, the remainder shall be green.

15 V phantom power shall be available at each microphone input: this shall be selectable for each input by moving internal PCB jumpers. Each microphone input shall have a simple high-pass filter to remove frequencies below 100 Hz: this shall be selectable for each input by moving internal PCB jumpers. Each microphone input shall be provided with a front panel switch to enable/disable the input: the switch shall be internally illuminated when the mic input is active.

Front panel switches shall configure the mixer-amplifier to perform the following functions: i) detection of a signal on any mic input will automatically reduce the music level by approximately 30 dB, ii) detection of a signal at one line input will automatically override all others, even if unselected. The switches shall be internally illuminated when the priority function is enabled. An external control input shall be provided to allow muting of the music source by a fire alarm or other external emergency system. It shall be possible to additionally mute the microphone inputs by this command input by moving an internal PCB jumper.

The mixer-amplifier shall be available in two models with different output powers of 120 W or 240 W, measured into a four ohm load. The mixer-amplifier shall be capable of driving either low impedance (four ohms or higher) loads, or 100 V-line, 70 V-line or 25 V-line line systems via an internal transformer fitted as standard. It shall not be possible to use both types of output simultaneously. The 100 V, 70 V and 25 V transformer outputs shall be available on a rear panel output connector of the detachable multipin type, shrouded by a screw-attached safety cover. The low impedance output shall be available on a separate detachable multipin connector.

A switchable high-pass filter shall be fitted to each channel to remove LF content below 70 Hz (-3 dB) to minimise transformer saturation in 100/70/25 V-line systems; this filter shall be by-passable by moving an internal jumper. A fixed limiter circuit shall shall operate in such a manner that it is not possible for clipping to occur in the output stage. The amplifier shall also incorporate protection circuitry that isolates the output in the event of DC being detected at the amplifier output or if the internal temperature exceeds a safe operating level.

The mixer-amplifier shall be equipped with a balanced line level output from the pre-amplifier stages: this shall use a detachable multipin connector on the rear panel.

The mixer-amplifier shall be built in a 2U steel chassis for mounting in a standard 19" rack. Temperature-controlled forced-air fan cooling with front-to-rear airflow shall be employed. The front panel shall be fitted with a mechanically latching mains power switch and there shall be visual indication of the amplifier's active status.

It shall be possible to specify either version of the amplifier to operate from an AC mains supply voltage of 115 V or 230 V, with a tolerance of \pm 10% applying to both voltages.

The mixer-amplifiers shall be the Cloud VMA120 (120 W output) and the Cloud VMA240 (240 W output).