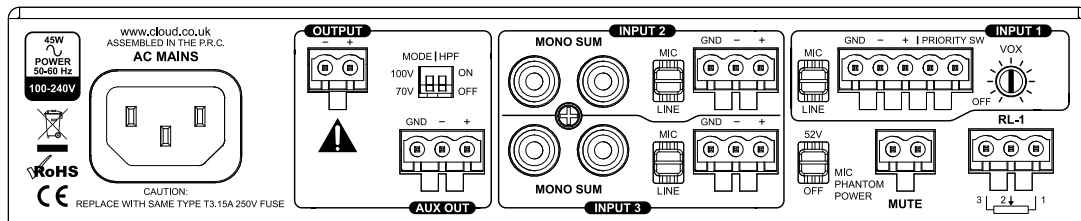
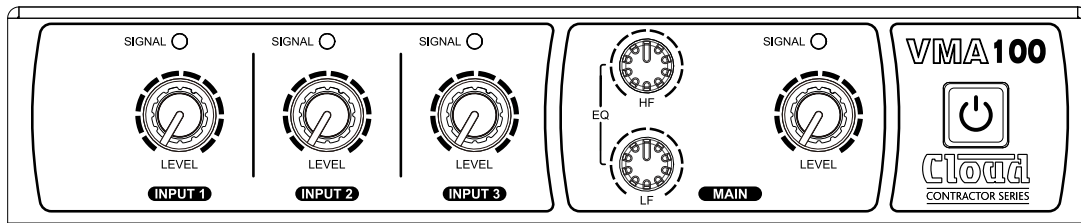


VMA100 MIXER-AMPLIFIER



General Description

The Cloud VMA100 is a very compact (1U, half-rack width) mixer-amplifier for use in all types of commercial premises. It is attractively cost-effective, and has been designed to be as simple to install and operate as possible while offering a useful range of features and configuration options.

The unit is a mono power amplifier combined with a simple mixer input section. The amplifiers feature a transformerless output stage and are intended for driving 70/100V-line loudspeaker ("Hi-Z") distribution systems directly. A high-pass filter, selectable on the rear panel, minimises the effect of transformer saturation at low frequencies when driving Hi-Z systems.

The mixer section has three channels. Each has a balanced input, selectable for use with either mic or line level sources. Phantom power is available globally at all inputs; mic/line switching and phantom power selection is via rear panel switches. Additionally, two of the input channels have a pair of phono (RCA) sockets, typically for connection of stereo music sources: these unbalanced inputs are internally summed to mono. Input 1 may be configured for priority operation, either by VOX automatic ducking, or with a paging microphone with external contact closure. A rear panel control allows the VOX operation threshold to be set.

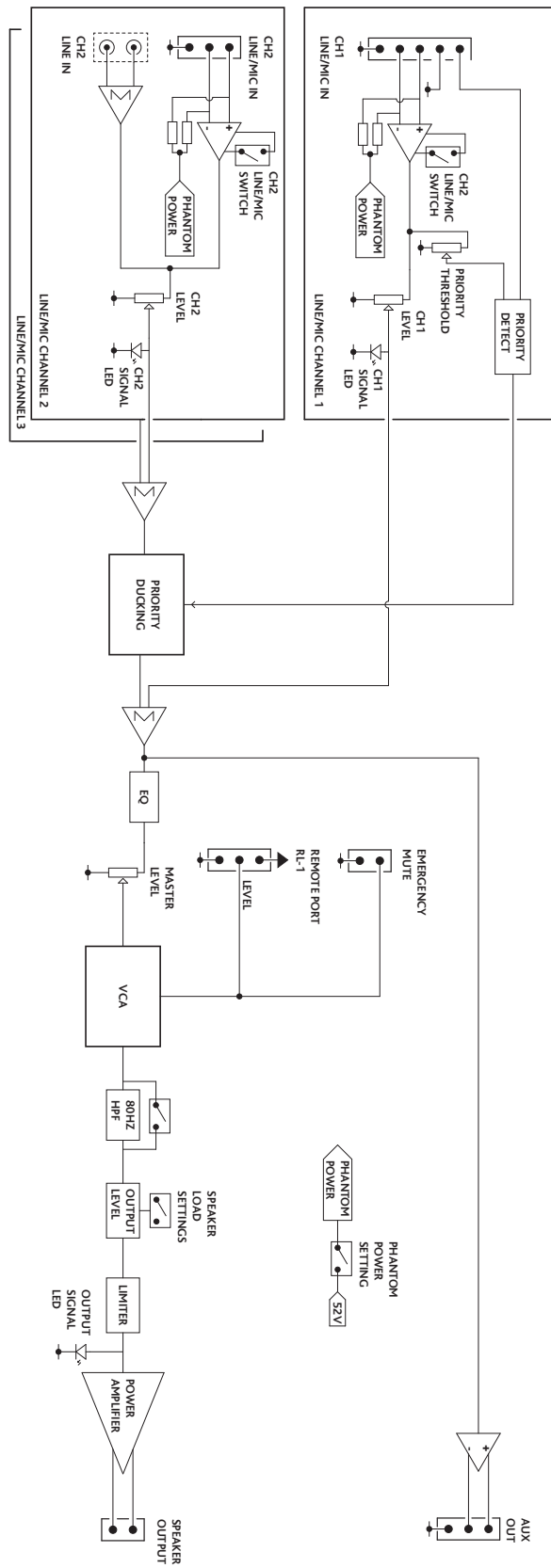
The simple front panel has rotary controls for the level of each input channel, and a master level control and HF/LF EQ adjustment for the main output. Bi-colour LEDs indicating signal presence or peak level are provided for each input and the master output; the latter also indicates an over-temperature condition. The power button has a tri-colour LED indicating standby mode and APD (Automatic Power Down) status as well as normal operation.

On the rear panel, a music mute control input is provided; this can be used to mute the power amplifier output in an emergency. An RL-1 control interface gives the VMA100 compatibility with standard Cloud remote volume control plates. In addition to the power amplifier output, the VMA100 has a balanced, line level auxiliary output. The signal at this output is pre- both master fade and master EQ, and is unaffected by the emergency mute input or a remote volume control. This can be used to drive additional slave amplifiers.

VMA100 main features:

- Industrial quality mono mixer-amplifier
- 100 W power output
- Output suitable for 70/100 V-line systems
- Balanced auxiliary line output, pre master level/EQ
- Three balanced inputs, each switchable for mic or line level: on Eurobloc connectors
- Channel 1 configurable for VOX or switched priority operation
- Channels 2 & 3 have stereo unbalanced line inputs: 2 x phono/ RCA pairs
- Front panel level controls for each input and master output
- Front panel HF/LF EQ controls for master output
- Front panel signal present LEDs for each input, plus master output
- 52 V phantom power available at all mic inputs (global selection) by rear panel switch
- 80 Hz high-pass filter in output stage, switchable on rear panel
- RL-1 interface for remote volume plate
- Emergency mute input: mutes master output (aux out remains active)
- 70V-line or 100V-line operation, switchable on rear panel
- Peak limiter – prevents clipping
- Protection against output over-current and DC, plus over-temperature
- Universal PSU – 100-240 V AC operation
- Automatic Power Down (APD) mode minimises power consumption in absence of input signals
- Convection cooling – no fans, silent in operation
- Very compact – 1U, half-rack width
- Rack kit available to rack-mount one or two units (Cloud Part Ref. HALF-U RACK KIT)

Block diagram



Technical Specifications

Inputs		
Frequency Response	20 Hz to 22 kHz, ± 2 dB	
Sensitivity	+4 dBu (1.228 V _{rms})	
Input impedance	>10 kohms, balanced/unbalanced	
Headroom	18 dB	
Noise	<-90 dB (22 kHz bandwidth)	
Microphone Inputs		
Frequency Response	20 Hz to 22 kHz, ± 3 dB	
Sensitivity	-36 dBu (12.28 mV _{rms})	
Input Impedance	20 kohms, balanced	
Headroom	18 dB	
Noise (EIN)	-95 dB	
Phantom Power	52 V, switched globally by rear-panel switch	
Main Output		
Equalisation	LF: ± 10 dB @ 100 Hz; HF: ± 10 dB @ 10 kHz	
Output Power (1 kHz continuous sine wave)	100 watts	
Minimum load	70 V-line	49 ohms
	100 V-line	100 ohms
Frequency response	20 Hz to 20 kHz, ± 1 dB (80 Hz HPF off)	
THD + N	70 V-line	<0.06% @ 55 V output, 1 kHz <1% @ 70 V output, 1 kHz
	100 V-line	<0.06% @ 80 V output, 1 kHz <2% @ 100 V output, 1 kHz
Protection	Fixed level signal limiter; DC, over-current and over-temperature protection	
Auxiliary Output		
Nominal output level	+6 dBu (1.546 V _{rms}), balanced	
Noise	<-90 dB, 22 kHz bandwidth	
General		
Power input	Universal PSU: 100 to 240 VAC, $\pm 10\%$; 50/60 Hz	
Fuse details	Time delay micro fuse (4.3 x 8.3 mm); rating 3.15 A	
Normal operating temperature	0 °C to 35 °C (Note: performance and specifications cannot be guaranteed outside of this range)	
Cooling	Natural	
Power Consumption	Standby ¹	1.65 W (17.01 VA)
	Idle ²	13.50 W (30.75 VA)
	1/8th Power ³	29.50 W (54.93 VA)
	1/3rd Power ⁴	53.40 W (89.00 VA)
Heat Loss	Standby ¹	5.90 kJ/hr (5.60 BTU/hr)
	Idle ²	48.60 kJ/hr (46.10 BTU/hr)
	1/8th Power ³	57.60 kJ/hr (54.60 BTU/hr)
	1/3rd Power ⁴	63.00 kJ/hr (59.70 BTU/hr)
Dimensions (W x H x D)	Net	220 mm x 44 mm (1U) x 303 mm 8.7" x 1.7" (1U) x 11.9"
	Shipping (Gross)	388 mm x 91 mm x 380 mm 15.3" x 3.6" x 15.0"
Weights	Net	1.9 kg /4.2 lbs
	Shipping (Gross)	2.61 kg /5.75 lbs

Notes re Power Consumption and Heat Loss measurements:

All measurements at 230 VAC 50 Hz power input

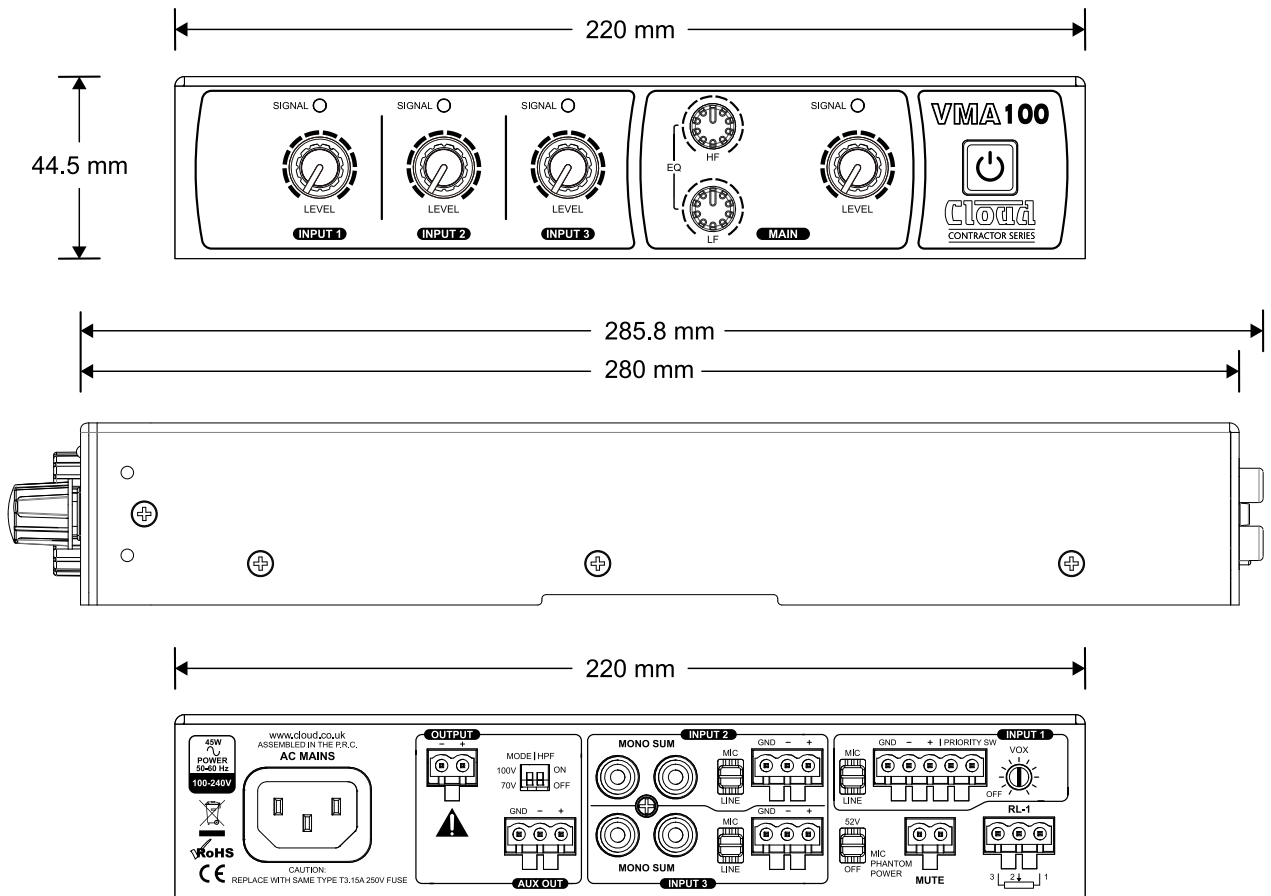
1. Standby: APD mode active, no inputs

2. Idle: amplifier active, but no audio output

3. 1/8th. Power: constant sound level at one-eighth maximum rated output per channel (audio mainly clean, only occasional clipping)

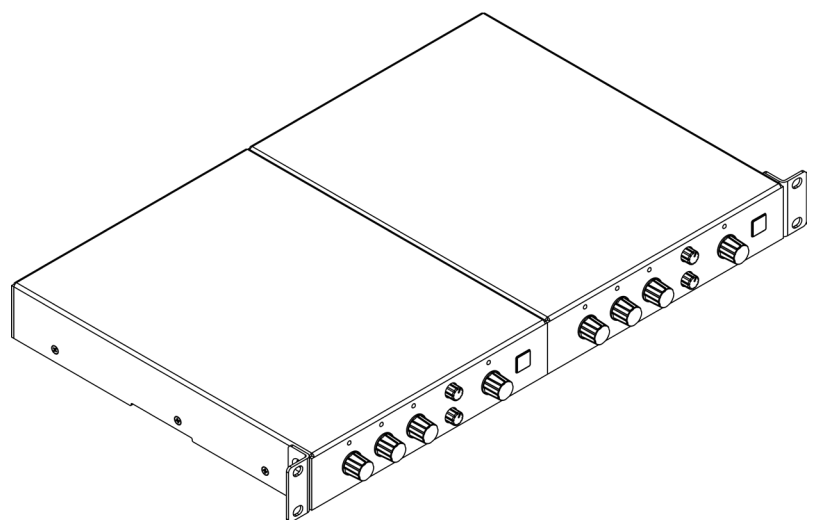
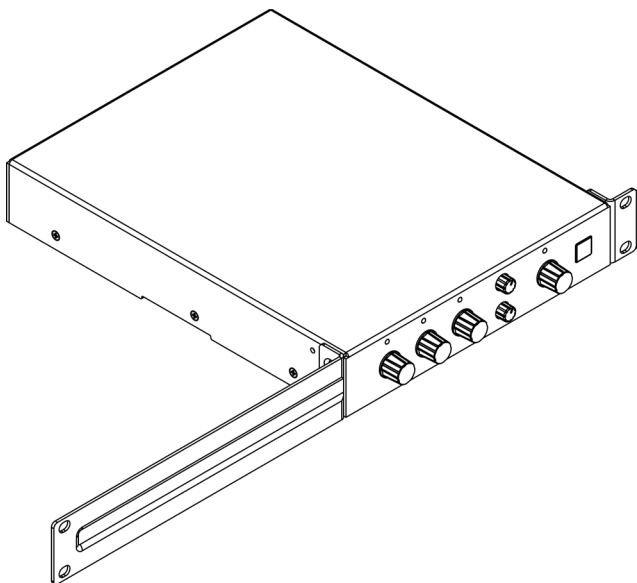
4. 1/3rd. Power: constant sound level at one-third maximum rated output per channel (audio beginning to become compressed, limited or heavily clipped)

Dimensions



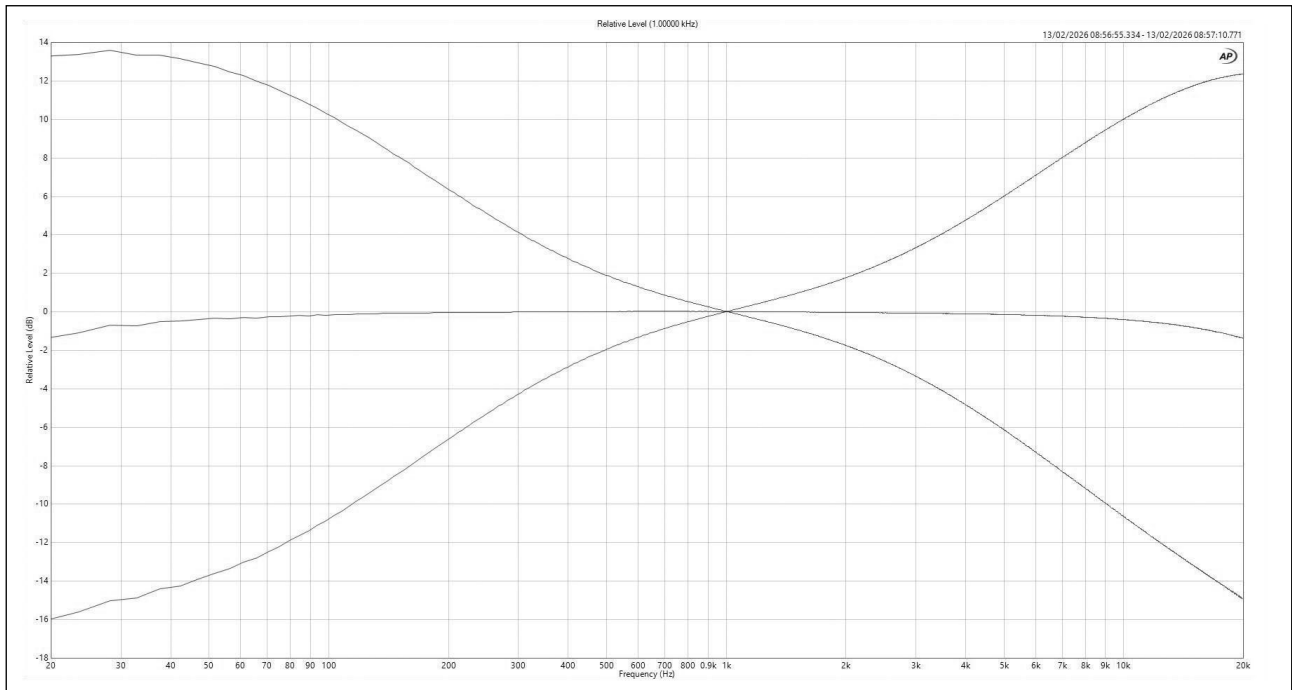
VMA100 with rack ear and half-rack extension

Two VMA100s in rack mount kit

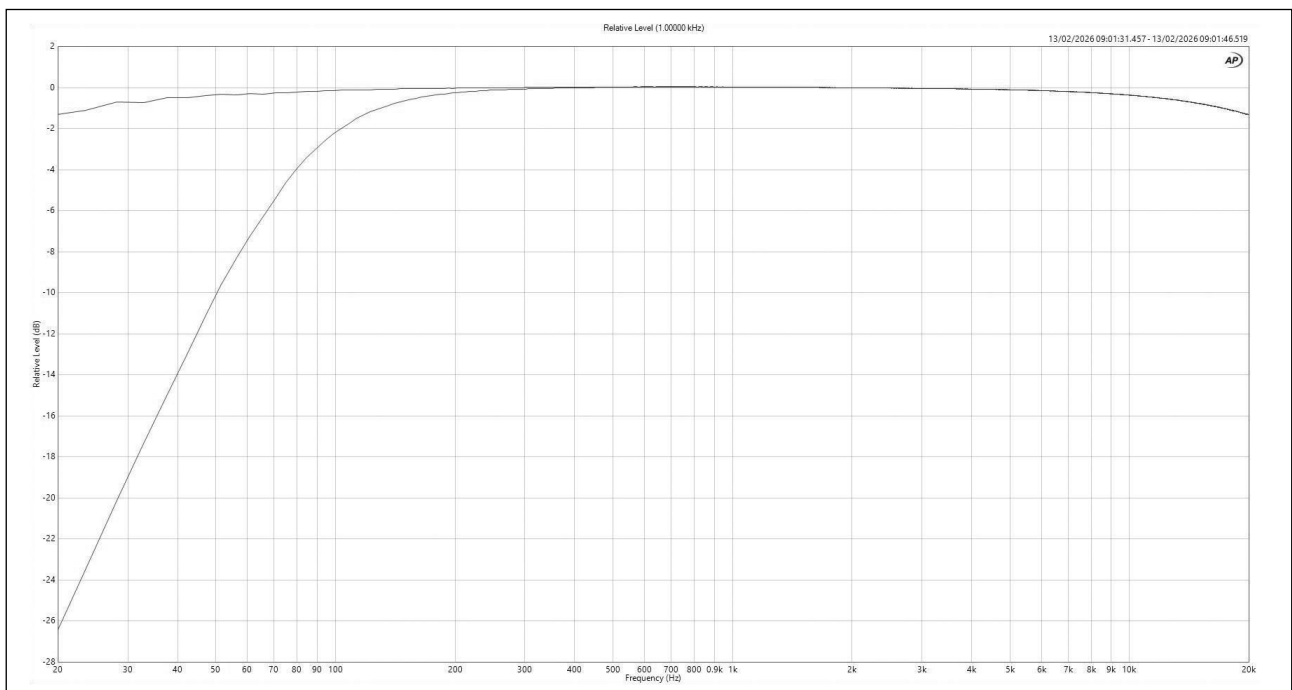


Rack-mounting hardware (HALF-U RACK KIT) sold separately

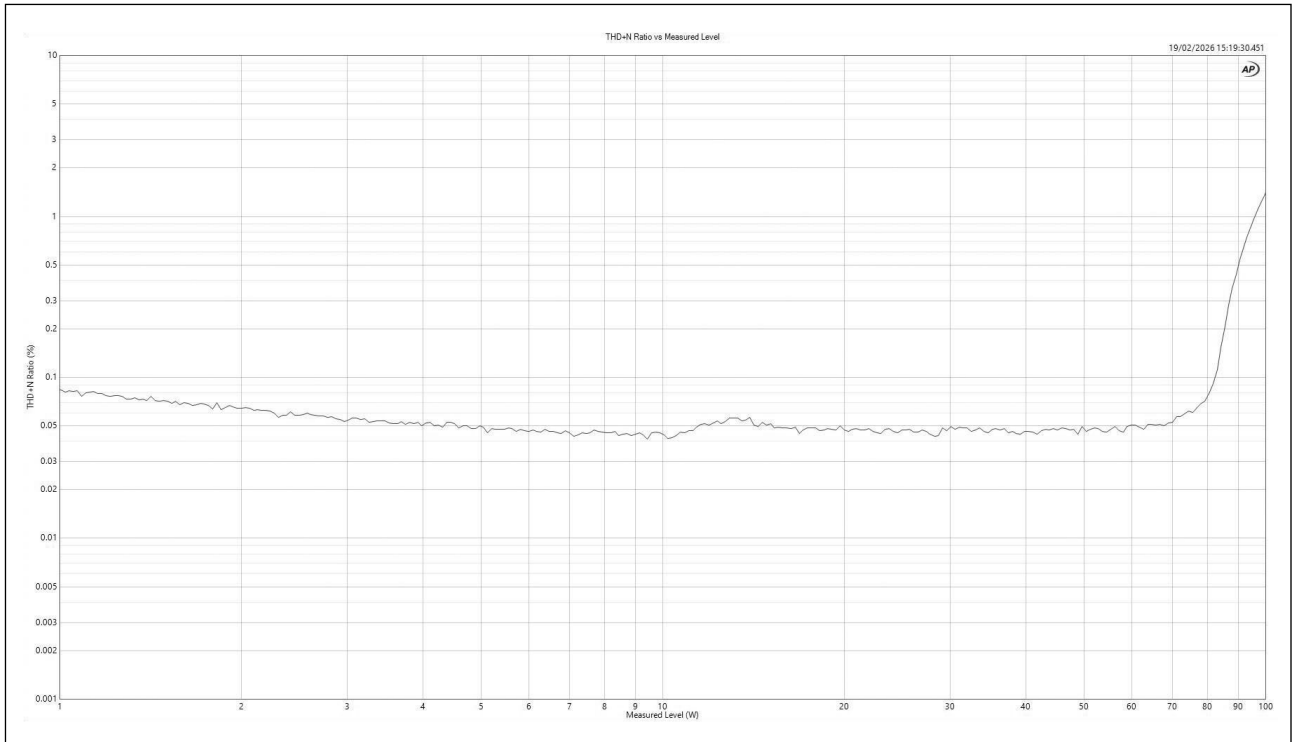
Performance Graphs



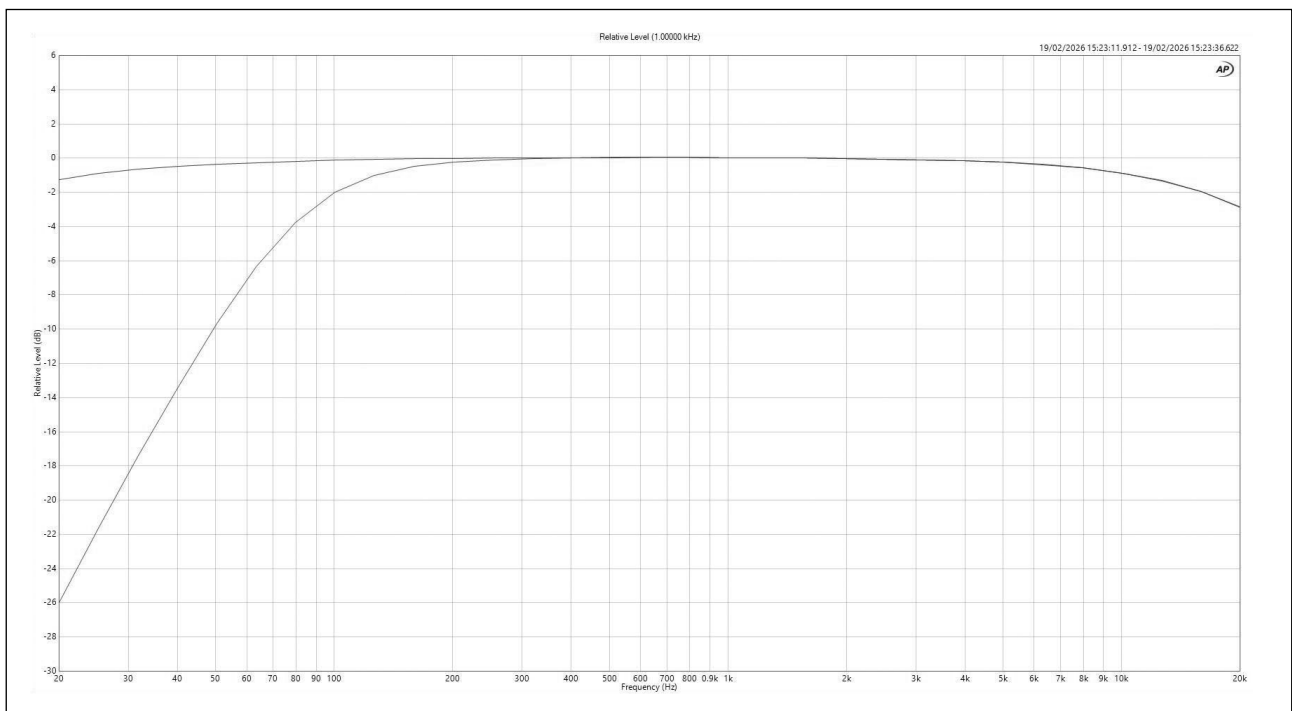
EQ response



High-pass filter response



THD + Noise



Mic input frequency response

Architect's and Engineer's Specification

The mono mixer-amplifier shall be equipped with three balanced inputs: all inputs shall be switchable to be suitable for mic or level signals. Two inputs shall use 3-pin Eurobloc connectors, and additionally have a pair of unbalanced inputs via phono sockets (RCA jacks) for the connection of stereo music sources; the left and right inputs of these shall be summed internally to mono. The third input shall use a 5-pin Eurobloc connector; this input shall be configurable for priority operation either with an external switch or by using VOX sensing. Switched priority operation shall use the two extra pins of the Eurobloc connector; and it shall be possible to adjust the input level to trigger priority operation in VOX mode via an externally accessible control of the preset type. Phantom power for operating capacitor microphones shall be available at all inputs; it shall be possible to deselect phantom power by an externally accessible switch; it is acceptable for this switch to affect all inputs globally.

Each input shall have a front panel level control and visual indication of signal presence at the input; level detection shall be post-level control. The front panel shall also provide output level control and two-band equalisation for the summed inputs; visual indication of output signal presence shall also be provided.

An external control input shall be provided to allow muting of the main output by a fire alarm or other external emergency system. It shall be possible to control the main output level from a remote location; a range of passive control plates to accomplish this shall be available in a range of cosmetic finishes; these shall be suitable for mounting in standard single-gang electrical back boxes.

The mixer-amplifier shall be suitable for directly driving 100V-line or 70V-line loudspeaker distribution systems. The output shall be available on a rear panel 2-pin Eurobloc connector. A high-pass filter shall be fitted to remove LF content below 80 Hz (-3 dB) to minimise transformer saturation in loudspeakers; this filter shall be selectable by an externally accessible switch. A fixed limiter circuit 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 loudspeakers in the event of DC or excessive current being detected at the amplifier output. The protection circuitry shall also reduce the amplifier output if the internal temperature should exceed the normal operating level.

The mixer-amplifier shall be equipped with a balanced line level output from the pre-amplifier stage: this shall use a 3-pin Eurobloc connector on the rear panel. This output shall not be affected by the external control input or either the front panel master level control or a remote level control.

The mixer-amplifier shall be built in a 1U steel chassis of half-rack width. An optional rack-mounting kit shall be available to enable the mixer-amplifier to be installed in a standard 19" equipment rack, either singly, or in pairs. The front panel shall be fitted with a mains power switch and there shall be visual indication of the amplifier's active status. The mixer-amplifier shall be silent in operation, and capable of operating from AC mains supply voltages between 100 V and 240 V. The mixer-amplifier shall be the Cloud VMA100; the rack-mounting kit shall be the Cloud HALF-U RACK KIT.