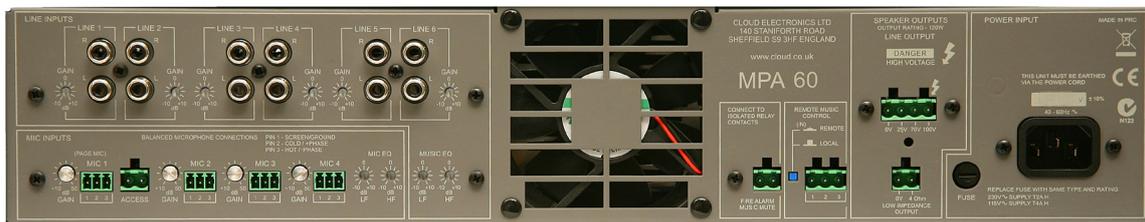


CLOUD MPA Series Mixer-Amplifiers



MPA Series - front panel view (MPA240 illustrated)



MPA Series - rear panel view (MPA60 illustrated)

General Description

The Cloud MPA Series is intended to provide a complete audio solution for Houses of Worship, retail outlets, hotels, licensed premises and other spaces where music, announcements and/or flexible paging are required. It combines the functions of a four-channel microphone mixer, full paging facilities, a six-input music source selector and a mono power amplifier in a single 2U unit.

The MPA range consists of three models, which differ only in the rated power of the amplifier stage:

- MPA60 60 watts
- MPA120 120 watts
- MPA240 240 watts
(all ratings are into 4 ohms)

The MPA mixer-amplifiers have six unbalanced stereo line inputs for music sources, and four balanced microphone inputs. Each microphone input has its own rear panel sensitivity control and front panel gain control, allowing multiple mics to be mixed together. Each line input has a rear panel sensitivity control; the required music source is selected by a front panel rotary switch and the volume is also adjusted on the front panel. The selected music source is mixed with the summed mic signals before being fed to the power amplifier stage.

The MPA Series is compatible with the Cloud PM1 single-zone paging microphone, and may also be used for one of the zones supported by the Cloud PM4/8/12/16 multizone paging microphones. Alternatively, Mic 1 input may be configured to suit most OEM paging systems;

paging is activated by a short-to-ground access connection, and Mic 1 may be configured to have automatic priority over the other mic inputs to prevent announcement clashes. Mic inputs may be selected to have automatic priority over the selected music source, and additionally, one line input may be set to have priority over any other selected to facilitate connection of a digital sound store or similar device. A pre-announcement chime may also be enabled at installation.

A range of EQ cards to match the MPA Series to various popular installed-audio loudspeakers is available.

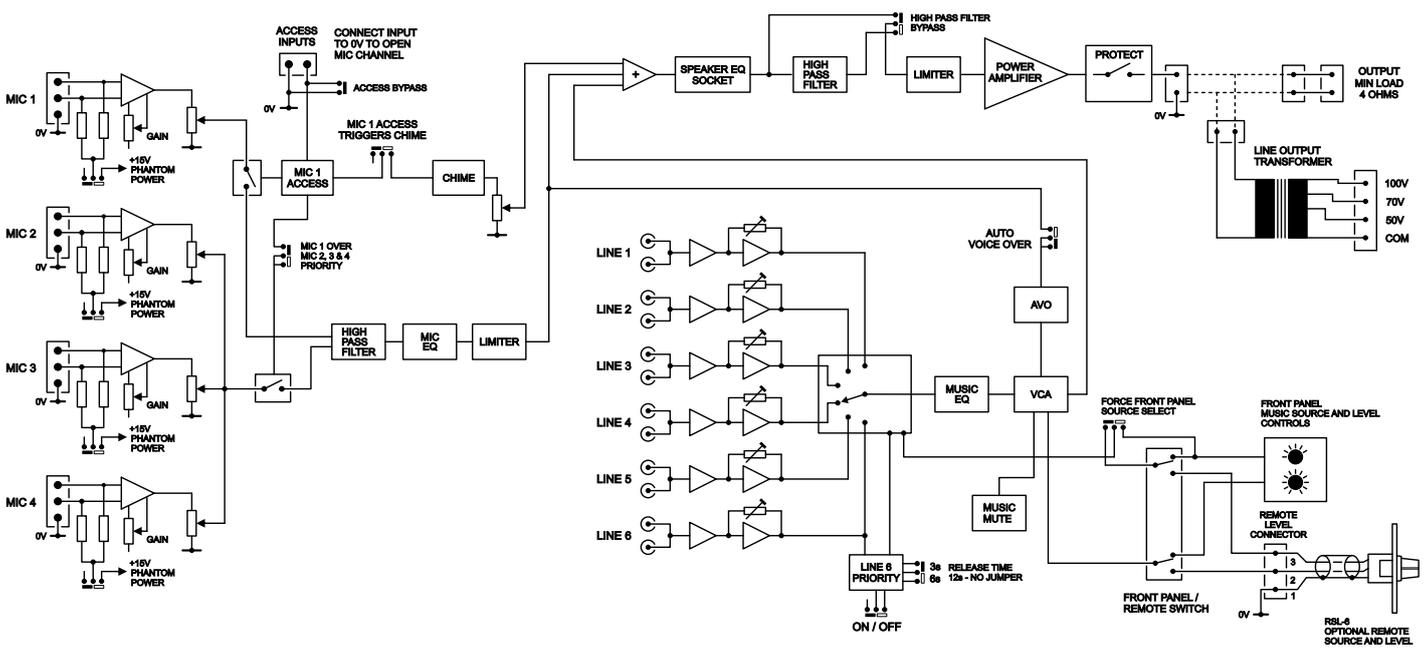
A 100/70/25V transformer is fitted as standard, and the output stage drives high-impedance line loudspeaker distribution systems directly. An internal jumper allows the transformer to be disabled, permitting the amplifier to be used to drive low-impedance loudspeakers.

Music level only, or music level and source selection may be controlled remotely if wished, using standard Cloud remote control plates.

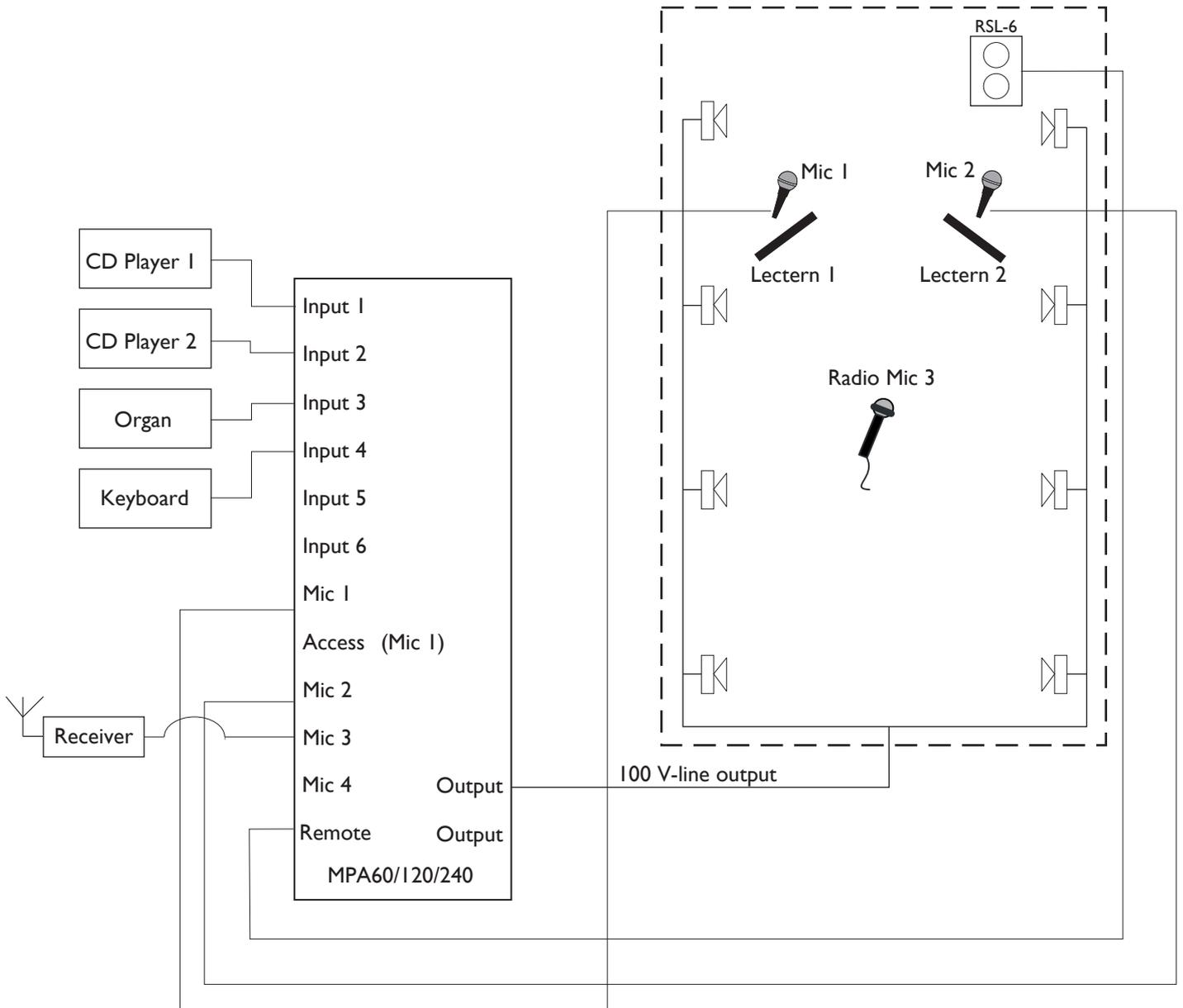
In common with most Cloud products, a Music Mute Input is provided, which may permit compliance with local Fire Authority regulations; the microphone inputs remain active when the Music Mute is applied.

- Provides amplification and simple control of music, mic sources and paging in a single unit
- Available in three versions, with output power ratings of 60, 120 or 240 W
- Integral four-channel microphone mixer with per-input sensitivity adjustment
- Front panel controls for music source, music level and level of each mic input
- Six (unbalanced) stereo line inputs with individual sensitivity adjustment
- Four balanced mic inputs – 15 V phantom power available on any or all
- Selectable 65 Hz hi-pass filter in each mic channel
- Power amplifier input limiter
- Separate microphone limiter circuit to prevent power stage limiter from ducking music signal in the presence of high mic levels
- Separate HF/LF EQ adjustments (rear panel) for mic signals and music source
- Paging control on Mic 1 input via short-to-ground access connection
- Selectable VOX mic-over-music priority on all mic inputs.
- Mic 1 may be selected to have priority over Mics 2 to 4
- Selectable LINE 6 priority with choice of release times
- Selectable pre-announcement chime
- Music Mute control input (N/O and N/C) for interface to an emergency system
- Compatible with standard Cloud remote control plates: RL-1 Series (music level) and RSL-6 Series (music level and source selection)
- Power amplifier protection circuitry
- Internal 100/70/25 V-line transformer fitted as standard
- Optional loudspeaker EQ cards available
- Forced-air cooling with variable speed control
- 2U 19" rack mounting unit

Block Diagram



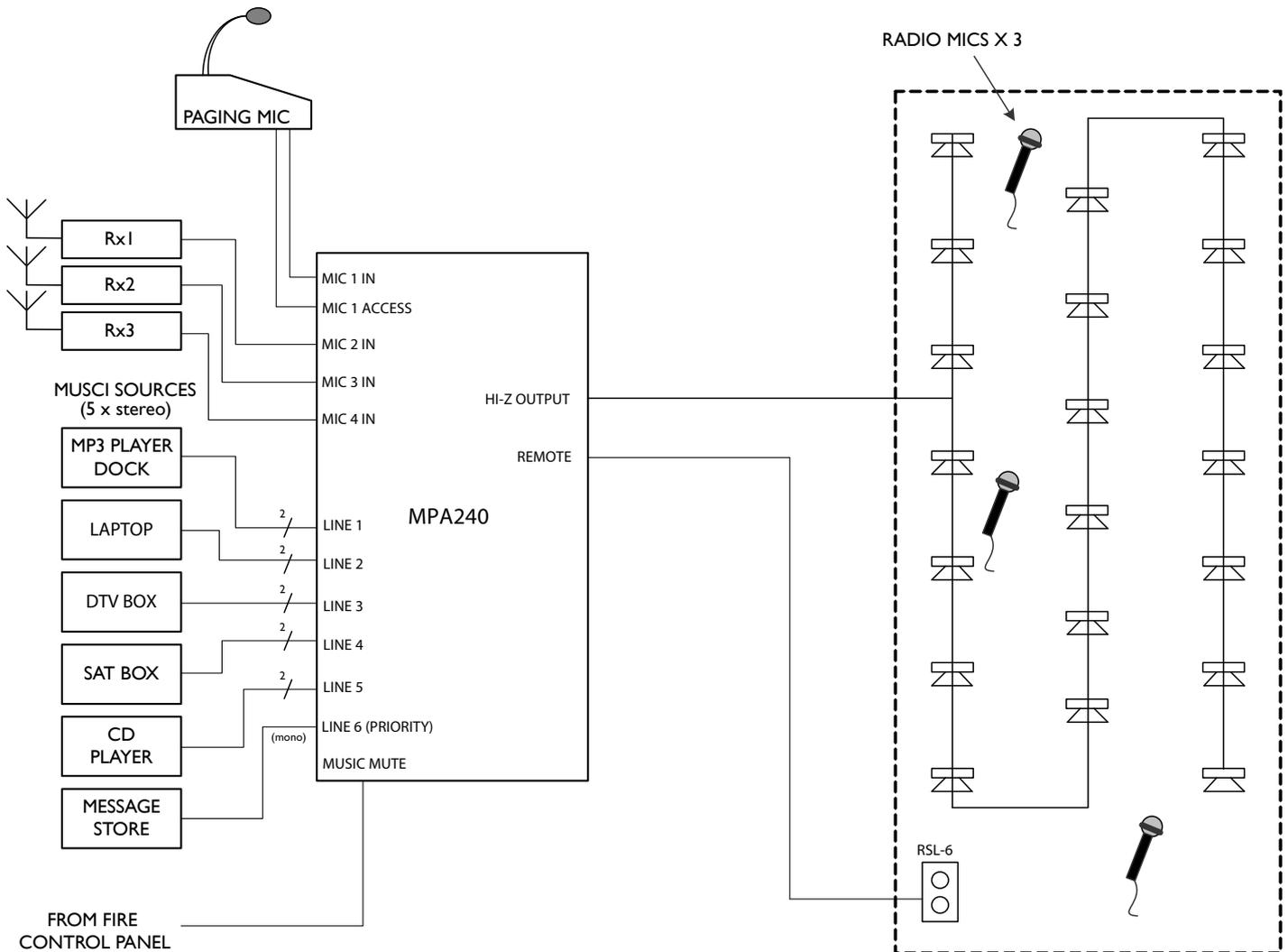
System Example 1 - House of Worship



In the example shown, the area has two fixed mic points (at the two lecterns), plus a radio mic to allow the presenter mobility. Any of the music sources can be selected and the music level controlled from the RSL-6 remote control plate at the back of the space.

Depending on the size of the area, any of the three models - MPA60 (60 W), MPA120 (120 W) or MPA240 (240 W) - could be used. The system is shown with multiple speakers being driven from the high-voltage (100/70/25 V) output, though in a smaller space, fewer speakers being driven directly from the low-impedance output might be more practical.

System Example 2 - Hospitality suite



In this example, a large area used for hospitality purposes is covered by multiple speakers on a 100 V (or 70 V) line distribution system, driven by an MPA240. Any one of five stereo music sources may be selected in the area by the RSL-6 remote control plate, which can also be used to set the volume. Input 6 has its priority option set, and is connected to the output of a digital sound store, which could form part of a wider building management system. This would typically play timed, pre-recorded, non-emergency messages.

In an emergency situation, all music inputs would mute under control of the fire system.

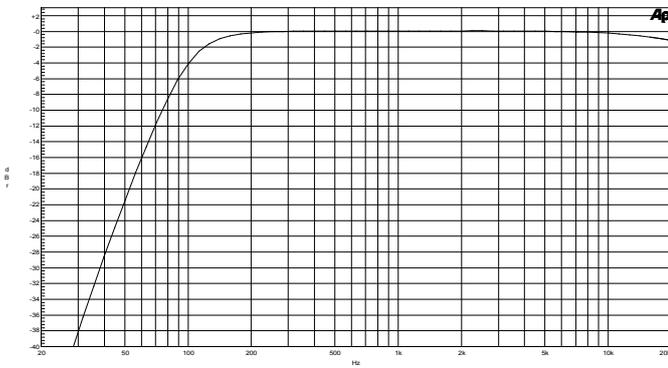
The MPA240's multiple mic inputs are particularly useful in such an application, as several mics are often needed simultaneously in receptions, presentations, and the like. The example shows three radio mics which are in addition to the paging microphone connected at Mic 1 input. The MPA240 can be configured to give the paging mic priority over any music source, and also other microphones, if required.

Technical Specifications

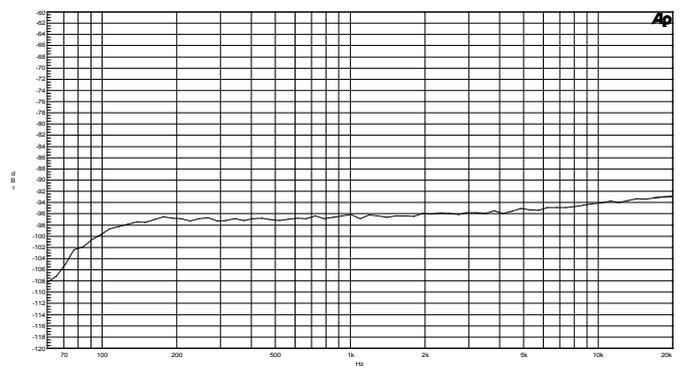
Line inputs			
Frequency response	Low-Z output	+0 dB/-1 dB from 20 Hz – 20 kHz (65 Hz filter switched out)	
	High voltage outputs	+0 dB/-2 dB from 20 Hz – 20 kHz (65 Hz filter switched out)	
Distortion	Low-Z output	<0.03% @ 1 kHz, 1 dB below full power (80 kHz bandwidth)	
	High voltage outputs	<0.04% @ 1 kHz, 1 dB below full power (80 kHz bandwidth)	
Sensitivity	195 mV (-12 dBu) to 2.0V (+8 dBu)		
Input Gain control	20 dB range		
Input impedance	47 kohms		
Headroom	>20 dB		
Noise	-90 dB 22 Hz – 22 kHz, at speaker output, relative to full power		
Equalisation	HF: ±10 dB @ 10 kHz LF: ±10 dB @ 50 Hz		
Microphone inputs			
Frequency response	Low-Z output	-3 dB @ 100 Hz (3rd. order filter); -1 dB @ 20 kHz	
	High voltage outputs	-3 dB @ 100 Hz (3rd. order filter); -2 dB @ 20 kHz	
Distortion	<0.03% @ 1 kHz, 1 dB below full power (80 kHz bandwidth)		
Gain range	40 dB range		
Input Impedance	>2 kohms (balanced)		
Phantom Power	15 V, switchable per-input by jumpers		
Headroom	>20 dB		
Noise	-127 dB EIN (22 Hz - 22 kHz, 150 ohms)		
Equalisation	HF: ±10 dB @ 5 kHz LF: ±10 dB @ 100 Hz		
Outputs			
Output Power (any output, 1 kHz continuous sine wave @ <0.07%)	MPA60	60 watts	
	MPA120	120 watts	
	MPA240	240 watts	
Protection	Fixed level signal limiter: max gain reduction of 20 dB; DC protection, IV limiting & short circuit protection; switch-on delay		
Cooling	Forced-air, front-to-rear airflow, thermostatically controlled		
General			
Power input	230V, 115V, 100V versions available		
Fuse rating	MPA60	230V	T1A H
		115/100V	T2A H
	MPA120	230V	T2A H
		115/100V	T4A H
	MPA240	230V	T4A H
		115/100V	T8A H
Fuse Type	All models	20 mm x 5 mm	
Dimensions	Net	482.6 mm x 88 mm (2U) x 300 mm / 19" x 3.5" x 11.8"	
	Shipping (Gross)	610 mm x 200 mm x 460 mm / 24" x 8" x 18"	
Weights	Net	MPA60	9.0 kg / 20 lbs
		MPA120	10.5 kg / 23 lbs
		MPA240	21.6 kg / 48 lbs
	Shipping (Gross)	MPA60	10.5 kg / 23 lbs
		MPA120	12.0 kg / 26.5 lbs
		MPA240	14.1 kg / 31 lbs

Performance Graphs

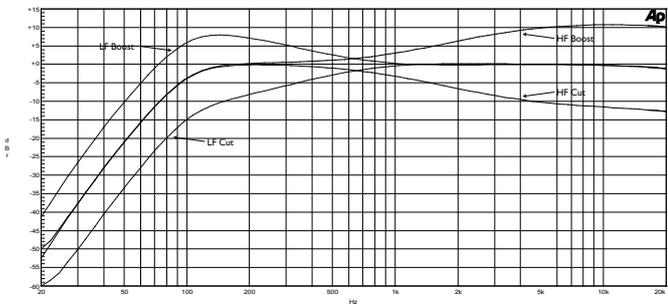
Mic Frequency Response



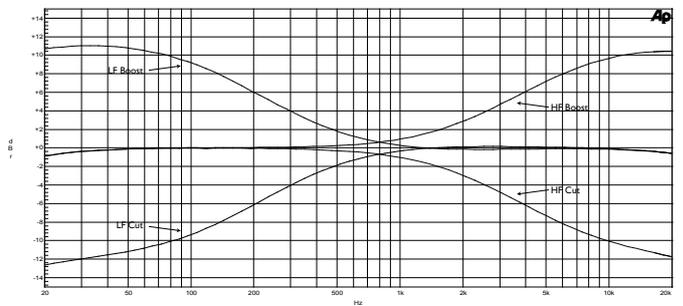
Mic Input Attenuation (front panel control at minimum)



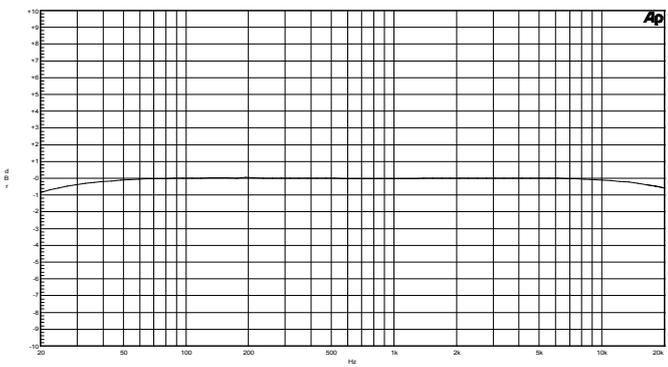
Mic EQ Curves



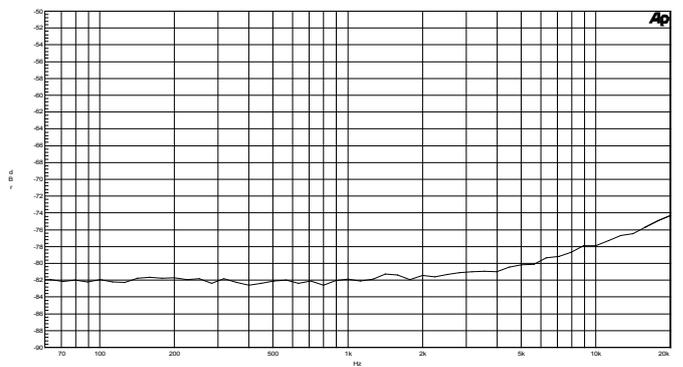
Music EQ Curves



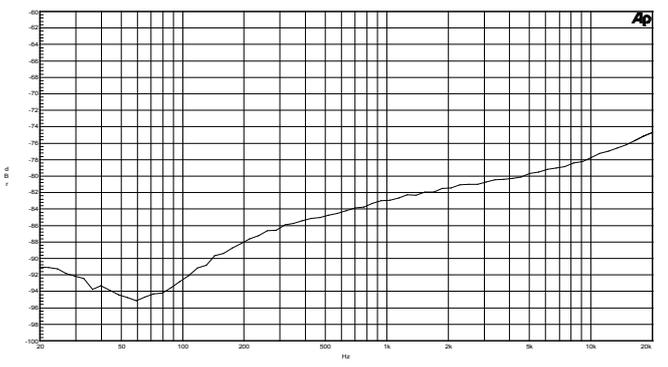
Line Input Frequency Response



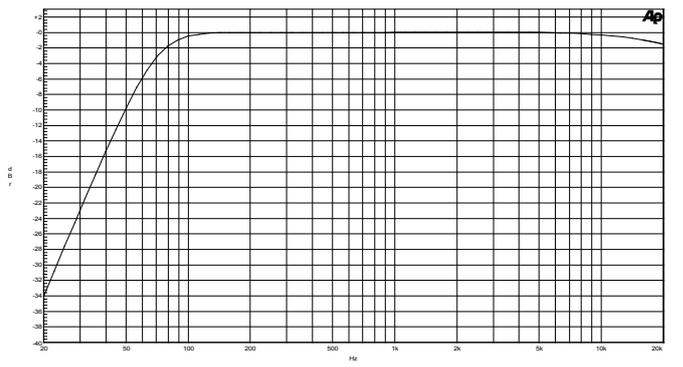
Line Input Attenuation (front panel control at minimum)



Line Input Crosstalk



Constant Voltage Frequency Response



Architect's and Engineer's Specification

The mono mixer-amplifier shall be equipped with six unbalanced stereo music inputs on phono sockets (RCA jacks) and four balanced microphone inputs on multipin connectors. The music input to be used shall be selectable by a 6-position front panel rotary switch. The four 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. 2-band equalisation adjustment shall be provided independently for the selected music source and summed mic signals.

A control input shall be provided to activate one mic input (Mic 1) by external contact closure; it shall be possible to configure the mixer-amplifier such that this function is overridden and Mic 1 is always active. It shall be possible to configure the mixer-amplifier to perform the following additional functions: i) when activated by its control input, Mic 1 will take priority over any other mic input in use; ii) detection of a signal on any mic input will automatically reduce the music level by 30 dB, iii) one line input will automatically override all others, even if unselected. Optional remote control panels shall be available to permit control of music level only or music level and input selection; it shall be possible to retrofit these to the mixer-amplifier at any time. An external control input shall be provided to allow muting of the music source by a fire alarm or other external emergency system. The mixer-amplifier will include a chime generator circuit triggered by a signal on Mic 1 input; it shall be possible to internally disable/enable this function.

The microphone mixer stage shall include a high-pass filter to remove background LF noise below 100 Hz (-3 dB). A second high-pass filter shall be included to remove LF content below 65 Hz

(-3 dB) from the mixed music and mic signals to minimise transformer saturation in 100/70/25 V-line systems; this filter shall be internally by-passable. Two separate internal fixed limiter circuits shall be fitted; these shall be located at i) the output of the microphone mixer stage and ii) at the input of the power amplifier stage. Operation of either limiter shall be indicated by a front panel LED. The mixer-amplifier shall incorporate protection circuitry that isolates the output i) during power-up, ii) in the event of DC being detected at the amplifier output, iii) if the internal heatsink temperature exceeds 90°C (194°F).

The mixer-amplifier shall be available in three models with different output powers of 60 W, 120 W or 240 W, into a 4 ohm load. The mixer-amplifier shall be capable of driving either low impedance (4 ohms or higher) loads, or 100 V, 70 V or 25 V 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 separate rear panel output terminals, shrouded by a screw-attached safety cover.

The mixer-amplifier shall accept internal plug-in equaliser cards to permit use with compatible loudspeakers from various manufacturers. 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 amplifier will be fitted with a front-panel power switch with LED indication.

The mixer-amplifier shall be the Cloud MPA60 (60 W output), the Cloud MPA120 (120 W output) or the Cloud MPA240 (240 W output). The remote control plates shall be the Cloud RL-1 Series (music level only) and the Cloud RSL-6 Series (music level and source selection).

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