

CX462 :Audio System Controller

482.6mm / 19"



Cloud CX462 front view



Cloud CX462 rear view

General Description

The Cloud CX462 is a versatile, rack-mounting (1U) stereo audio mixer designed for installed sound applications where multiple microphone and music sources are in use. It is particularly suitable for use in AV presentation situations such as training rooms and lecture theatres, houses of worship, where multiple microphones are often employed, and other retail and leisure venues where a flexible audio system for music and announcements is needed. A tamper-proof cover may be fitted to the front panel which covers the controls related to system set-up, but leaves the main level controls accessible.

The CX462 has six stereo line inputs and four mono microphone inputs. Internally, the mixer is divided into two separate sections, one for music, the other for microphones. In the music section, front panel controls select one of the six stereo line inputs and set its level. The music section has its own balanced output, which may be configured as mono or stereo. In the microphone section, the four mic inputs are mixed together, with front panel rotary controls for adjusting both individual mic levels and the level of the summed mix. The microphone section also has its own balanced output, in this case, in mono. The CX462 circuitry includes two "blend" signal paths, whereby the music signal may be added to the summed microphone

output at a user-variable level, and conversely, the mic sum signal may be added to the music output with its own user-variable level control. These two paths are independent and may be used simultaneously.

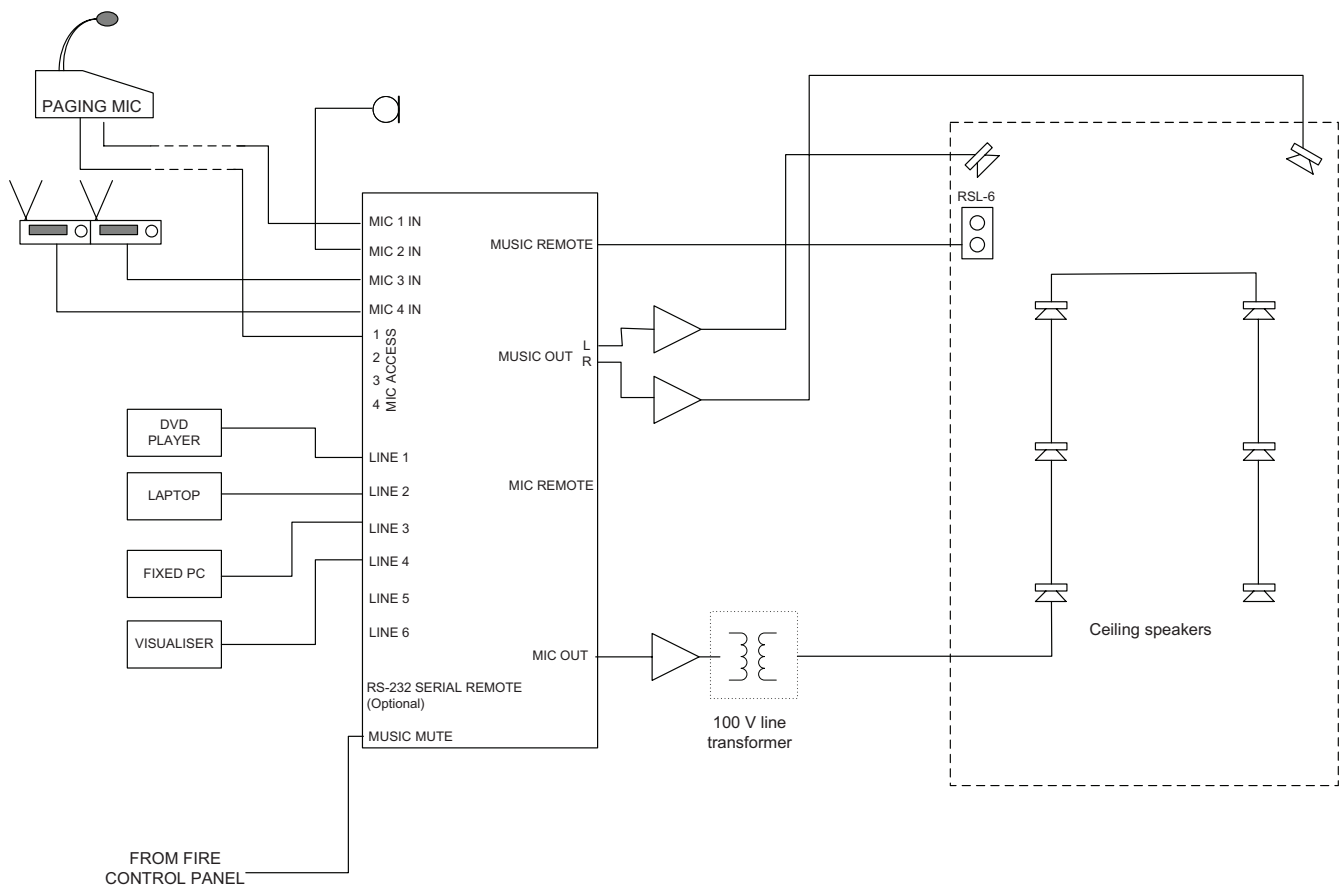
Standard Cloud remote control plates may be used with the CX462 to control the music level only, the music level and source selection, or the microphone mix level. The CX462 may also be fitted with an optional RS-232 serial control interface; this allows full remote control of music source and level, master microphone level and both mic and music muting.

The CX462 is directly compatible with Cloud PM Series paging microphone systems. Alternatively, Mic 1 input may be configured to suit most OEM paging systems: paging may be activated by voice (VOX) or short-to-ground access connections, and Mic 1 may be configured to have priority over the other three mic inputs to prevent announcement clashes. 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.

Bose® EQ cards may be fitted to any or all of the three outputs.

- Provides versatile mixing of music and microphones
- Independent channels for music and microphone signals
- Compatible with Cloud and most 3rd. party paging micro phones
- Six (unbalanced) stereo line inputs with individual sensitivity controls
- Four electronically-balanced mic inputs – 15V phantom power available on any or all
- Music channel: user front panel controls for music source, music level and "mic blend" level
- Microphone channel: user front panel controls for each Mics 1 to 4, Mic Master and "music blend" level
- Sensitivity (rear panel) and HF/LF EQ adjustment (front panel) for each mic input
- Additional mid-range sweep EQ (300 Hz to 3 kHz) on microphone channel
- 150 Hz hi-pass filter on all mic inputs, globally switchable (front panel)
- Electronically-balanced zone outputs - stereo music channel (may be configured mono) and mono microphone channel.
- HF/LF music EQ adjustment (front panel)
- Short-to-ground access paging control on all mic inputs; Mic 1 may also be VOX triggered
- Mic 1 may be selected to have priority over Mics 2, 3 and 4
- Mic-over-music priority selectable for each mic input via front panel switches
- Music channel has selectable LINE 6 priority with choice of release times
- Music Mute control input (NO or NC) for interface to emergency system
- Compatible with standard Cloud remote control panels: RL-1 for music and/or mic master levels and RSL-6 for combined music level and source selection
- Optional RS-232 port for serial remote control of music level, source and mute, mic master level and muting for each microphone
- Removable (screw-fixed) tamper-proof cover conceals all front panel system "set-up" controls; main level controls remain accessible
- Optional Bose® EQ cards available
- 1U 19" rack mounting unit

System Example



The CX335 is normally connected into the audio system between the mixer, zoner or other sound source selection component, and the main power amplifiers. The connection is entirely straightforward; the active audio source feeds the CX335's inputs, and its outputs feed the power amplifiers' inputs. All interconnections are stereo, and

should be balanced if possible. To prevent unauthorised bypassing of the CX335, we recommend that it is installed in a rack with lockable (or fixed) rear and sides, so that access to the rear of the unit is impossible.

Technical Specifications

Line Inputs

Frequency Response	20 Hz - 20 kHz, -0.5/+0 dB
Distortion	<0.03% typical, 80 kHz bandwidth
Sensitivity	100 mV (-17.8 dBu) to 1.5V (+6 dBu)
Input Gain Control	24 dB range
Input Impedance	48 k Ω
Headroom	>20 dB
Noise	<-91 dBu rms @ 0 dB gain, 22 kHz bandwidth
Equalisation	LF: \pm 10 dB @ 50 Hz, HF: \pm 10 dB @ 10 kHz

Microphone Input

Frequency Response	150 Hz - 20 kHz, -3/+0.5 dB (filter in)
	30 Hz - 20 kHz, -3/+0.5 dB (filter out)
Distortion	<0.05%, 20 Hz – 20 kHz
Gain Range	10 dB to 60 dB
Input Impedance	>2 k Ω (balanced)
Common Mode Rejection	>70 dB typical @ 1 kHz
Headroom	>20 dB
Noise	-128 dB EIN, 22 kHz bandwidth
Equalisation	LF: \pm 10 dB @ 150 Hz, HF: \pm 10 dB @ 5 kHz

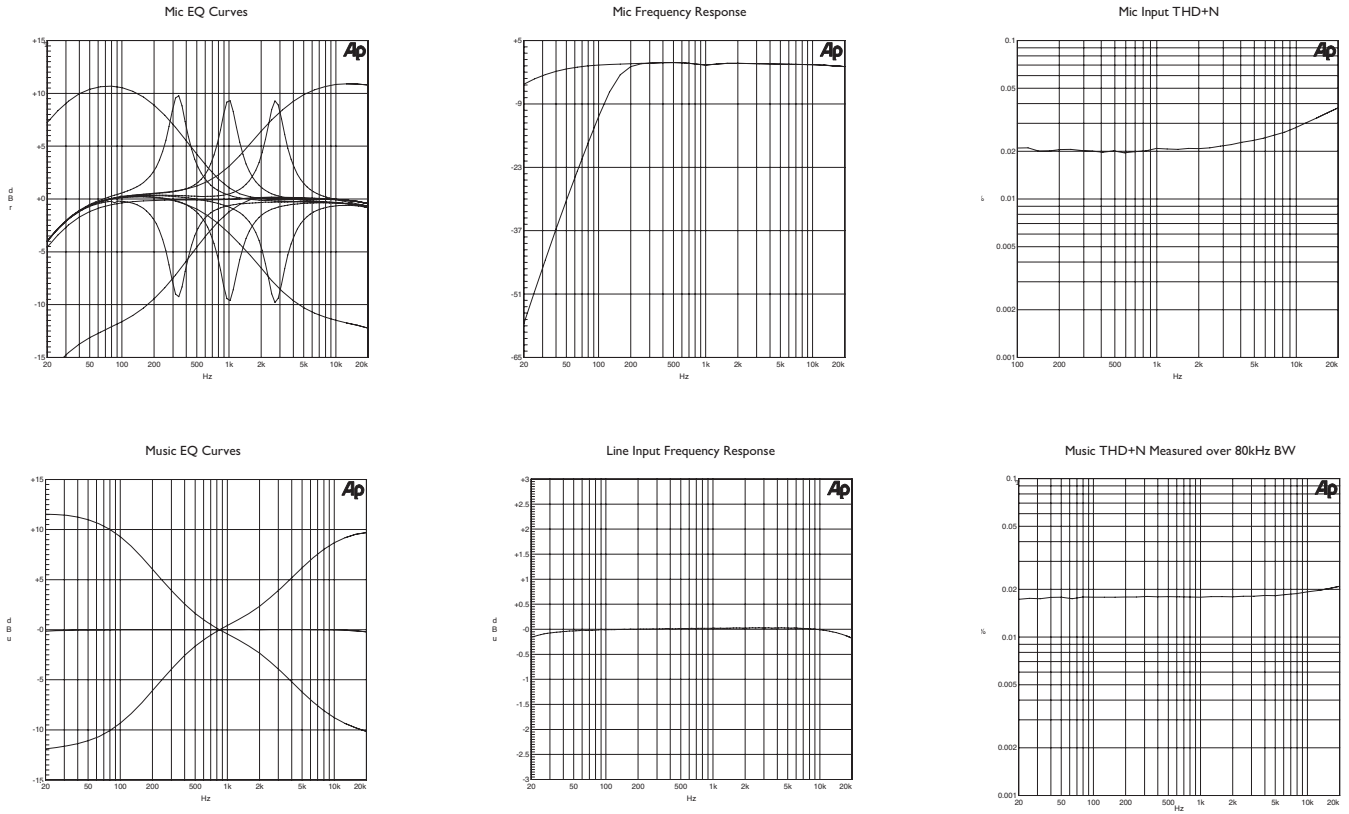
Outputs

Output	0 dBu (775 mV) balanced
Minimum load impedance	600 Ω
Maximum output level	+20 dBu

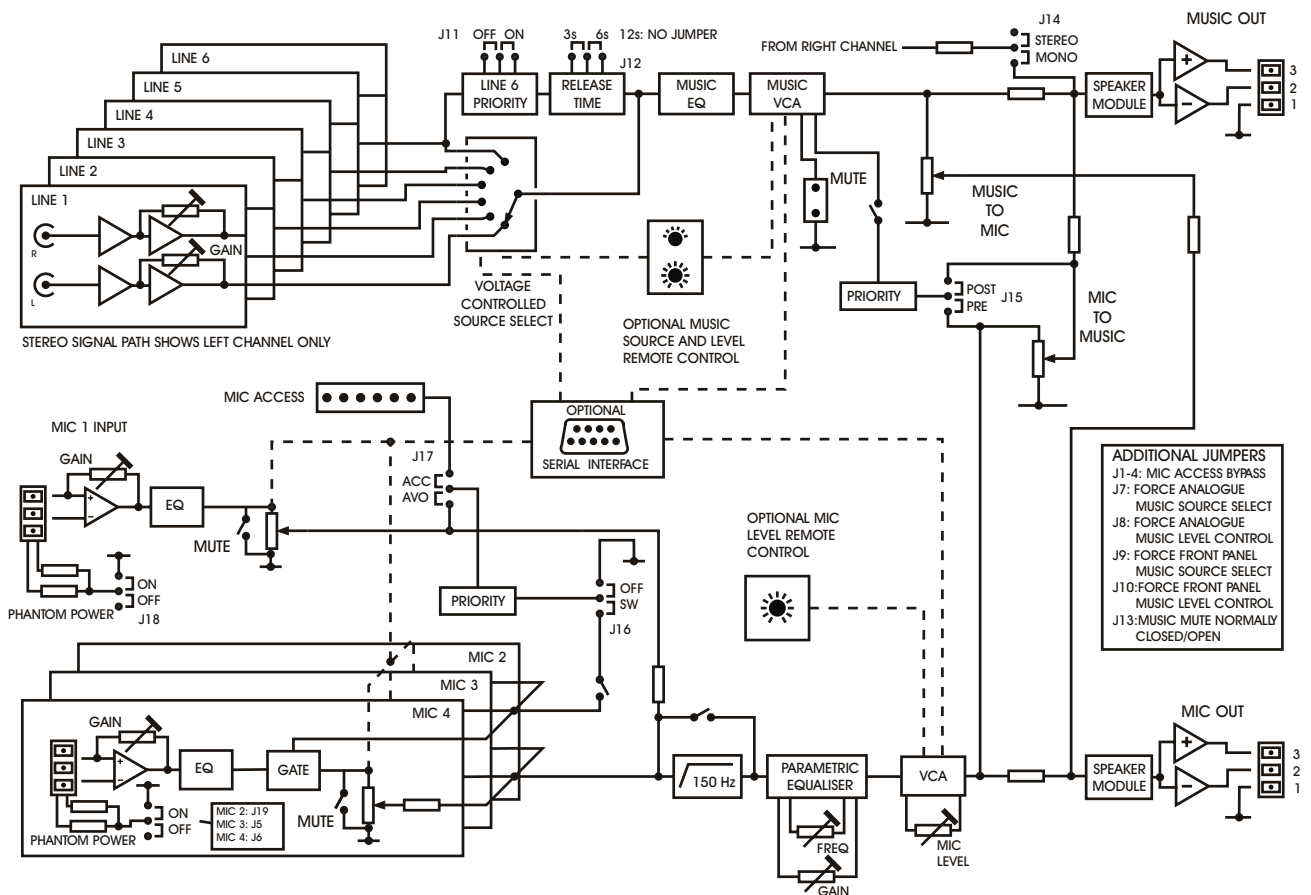
General

Power Input	230V/115V \pm 10%
Fuse Rating	T100 mA 230V, T200 mA 115V
Fuse Type	20 mm x 5 mm 250V
Dimensions (w x h x d)	482.6 mm x 44 mm (1U) x 152.5 mm
Weight	2.5 kg

Graphs



Block Diagram



Architect's and Engineer's Specification

The audio system controller shall be equipped with six unbalanced stereo music inputs on rear panel phono sockets (RCA jacks), and four electronically balanced microphone inputs, one electronically balanced stereo (L & R) music channel output and one electronically balanced mono microphone channel output, all on rear panel multipin connectors. Each microphone input shall have a rear panel input sensitivity control allowing up to 60 dB of gain to be applied. Phantom power shall be available at any or all microphone inputs when selected by internal jumpers. Each music input shall have a rear panel input sensitivity control allowing between -10 dB and +10 dB of gain to be applied to both left and right inputs. It shall be possible to configure the music output for mono operation by internal jumper selection.

The audio system controller shall have separate channels for controlling music and microphone signals. The input to the music channel shall be selected from the six music inputs and the level adjusted by front panel rotary controls. 2-band equalisation adjustment for the music channel shall be provided by front panel preset controls. The microphone channel shall have individual front panel level rotary controls for each microphone input. Each microphone input shall also have 2-band equalisation adjustment by front panel preset controls. The front panel shall also be fitted with a rotary master level control for the summed microphone mix and a single-band equaliser allowing up to 10 dB of cut or boost to be applied to the summed microphone signal over a range of frequencies specific to speech use. The microphone channel shall also have a third-order high-pass filter with a turnover frequency of 150Hz, switchable in or out from the front panel.

A front panel rotary control shall be provided to mix the postmaster signal in the microphone channel into the music channel, with equal amplitude being fed to the left and right channels. There shall also be a front panel rotary control to adjust the level of a mono mix of the post-master signal in the music channel into the microphone channel. Operation of these controls shall be independent.

A control input shall be provided to activate any or all of the microphone inputs by external contact closure. It shall be possible to configure the audio system controller such that this function is overridden on any or all inputs, making the microphone connected always active. It shall also be possible to configure one microphone input to automatically reduce the music level by 30 dB, either by detection of a signal at the input, or by the input's access control being triggered; in the case of activation by level detection, it shall also be possible to select the triggering signal to be either pre or post the front panel control blending the microphone channel into the music channel. It shall be possible to configure the same microphone input to take priority over a signal at any of the other three microphone inputs, either by detection of an input signal

or by the input's access control being triggered. It shall also be possible to configure one line input to automatically override any other, regardless of music source selection.

Optional remote control panels shall be available to permit control of i) music level; ii) music source selection and music level; iii) microphone mix level. It shall be possible to retrofit these to the audio system controller at any time. The remote control panels shall connect via rear panel multipin connectors. It shall be possible to activate remote control of the music channel functions by a front panel switch, with LED illumination. It shall also be possible to disable either the front panel music level or the music level and music source selection controls by moving internal jumpers. An external control input shall be provided to allow muting of the music source by a fire alarm or other external emergency system via isolated, 'volt-free' contacts, and this input shall be configurable to respond to either a short or open external circuit. An optional RS-232 serial control interface module shall be available; this shall be retrofittable internally and present a 9-pin Dsub connector on the rear panel. The RS-232 command set shall include commands to select the music channel source, adjust the music channel level, to mute the music channel, to mute any microphone input, and to adjust the microphone channel master level.

The mixer shall accept internal Bose® Series IIS plug-in equaliser cards to permit use with compatible Bose® loudspeakers. It shall be possible to fit these in the outputs of either or both the microphone or music channels, and in the case of the music channel, to fit them to either or both left and right outputs.

The audio system controller shall be supplied with a removable plate (with fixing screws) which may be secured to the front panel to conceal all controls except for the following: i) the four microphone input level controls, ii) the microphone master level control, iii) the music-to-mic blend control, iv) the music source selector switch, v) the music level control, the mic-to-music blend control.

The mixer shall be built in a 1U steel chassis for mounting in a standard 19" rack. The mixer will be fitted with a front-panel power switch with LED indication. Two mains supply variants shall be available: 230 V or 115 V. Mains supply shall be connected via a detachable IEC cable, with power being applied via front panel switch with LED indication.

The audio system controller shall be the Cloud CX462; the optional remote control panels shall be the Cloud RL-1 (music or microphone level) and the Cloud RSL-6 (music level and source selection). The optional RS-232 serial remote control interface shall be the Cloud CDI-S100.