CX-A200 Amplifier

Installation & User Guide

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Installation and operation manual

Contents

1 Safety Notes

The CX-A200 contains several PCB mounted jumpers which can be set to provide the desired configuration for a specific venue or installation. These adjustments should be performed by a technically qualified person who understands the hazards associated with mains operated equipment. Do not remove the top panel unless you are qualified to do so.

Remove the power cable from the unit before removing the top panel and do not make any adjustments with the unit switched on.

The CX-A200 is supplied with a power cable fitted with a moulded plug. If the plug is cut off the lead for any reason, remember that the discarded plug is a potential hazard and should be disposed of in a responsible manner.

2 General

The CX-A200 is a four channel power amplifier with a maximum output of 50 watts per channel into 4 ohm loads. The unit features extremely low distortion and low noise together with a high slew rate. Full circuit protection is provided and the load is disconnected if the heatsink overheats or any DC is detected at the output. A five second switch-on delay operates to avoid any switching thumps or other extraneous signals reaching the speaker system.

All four input amplifiers are balanced and connect via 3 pin XLR type connectors with adjacent level controls, all mounted on the rear panel. Input signal routing jumpers are provided and allow the unit to operate in many configurations whilst retaining simple input connections.

The CX-A200 amplifier can be used with up to two optional plug-in two channel VCA modules to provide remote level control. Each plug-in module can operate as two individual attenuators with two remote level controls, or can be linked to operate as a stereo pair with one remote level control.

3 Installation

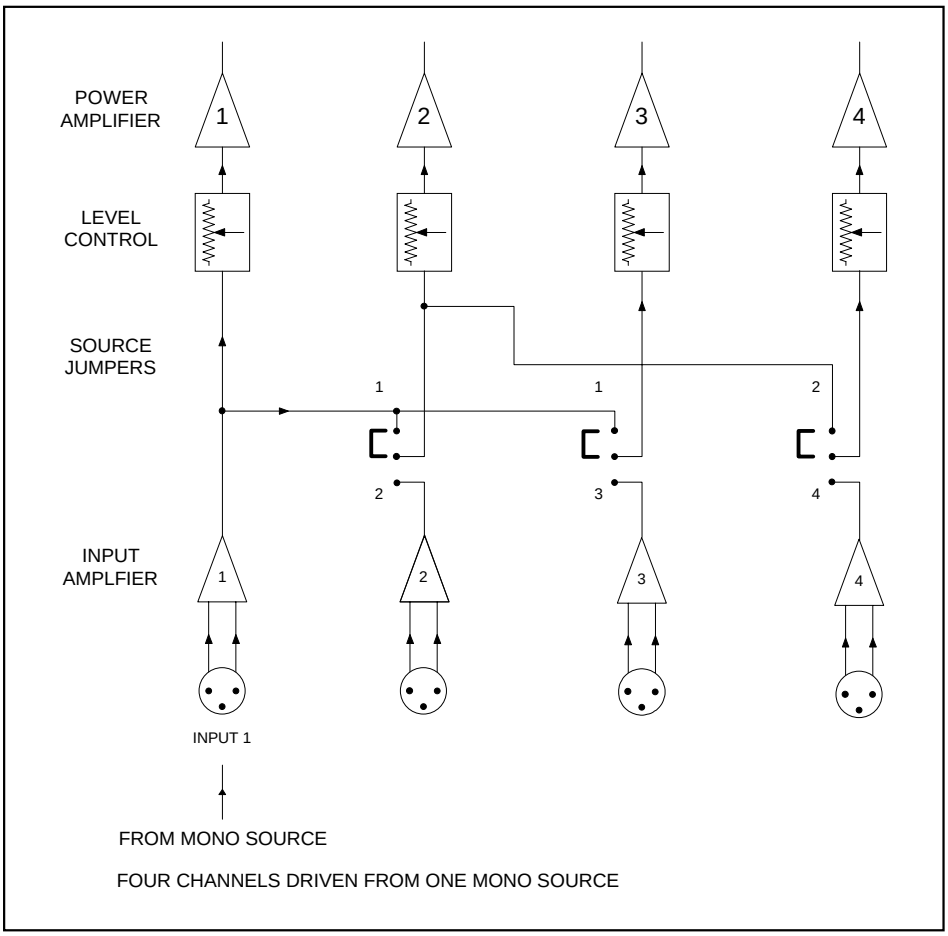
The CX-A200 is suitable for mounting in a standard 19" equipment rack and occupies two units of rack space. Sufficient ventilation must be provided for the unit. The amplifier draws cool air through the front panel and exhausts through the back panel and care must be taken not to obstruct the air flow otherwise the unit may intermittently turn off due to the built-in thermal protection. The unit is 300mm deep but a depth of 375mm should be allowed to clear the connectors.

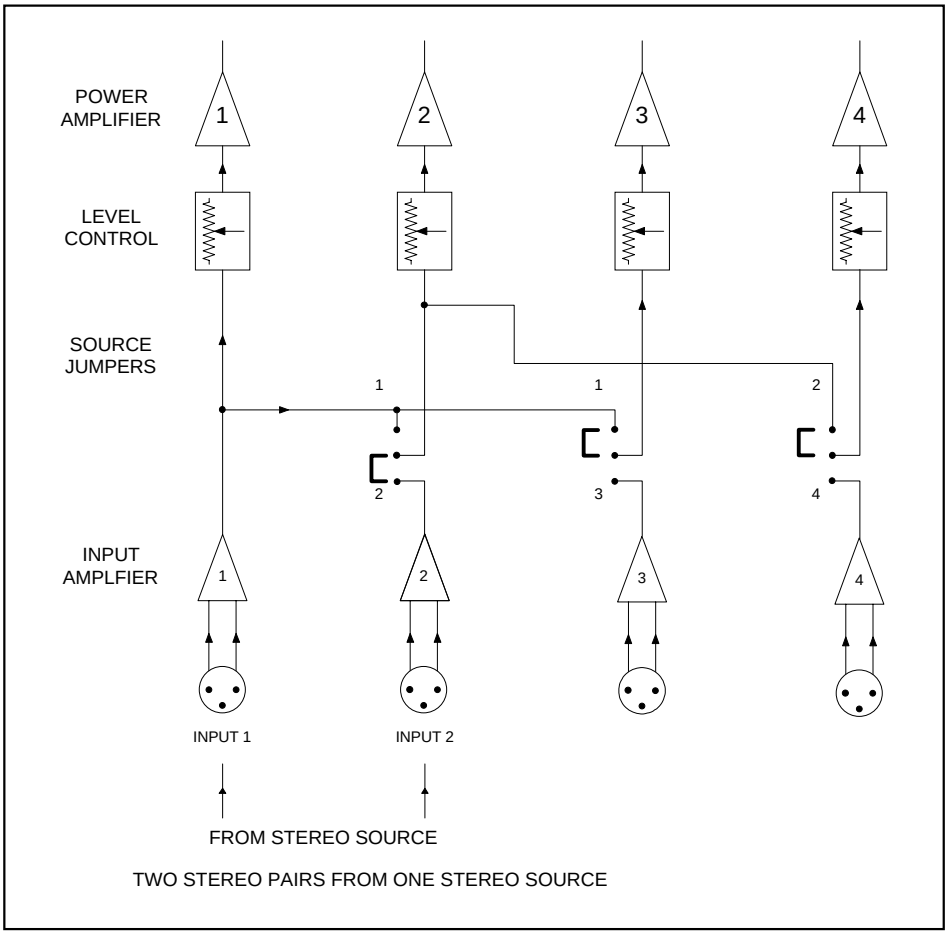
4 Input Facilities

All four inputs are balanced and use 3 pin XLR type connectors. All inputs are wired to the standard convention of pin 1 ground, pin 2 in-phase, pin 3 reverse phase, with the shell of the connector connected to the chassis. If the unit is operating in a location which has a high level of electrical or magnetic disturbance or is close to a TV or radio transmitter, we suggest that the input cable screen be connected to the shell of a metal XLR type connector. If the signal is from an unbalanced source, connect pin 3 to pin 1 (ground) inside the XLR type connector and use pin 2 as hot.

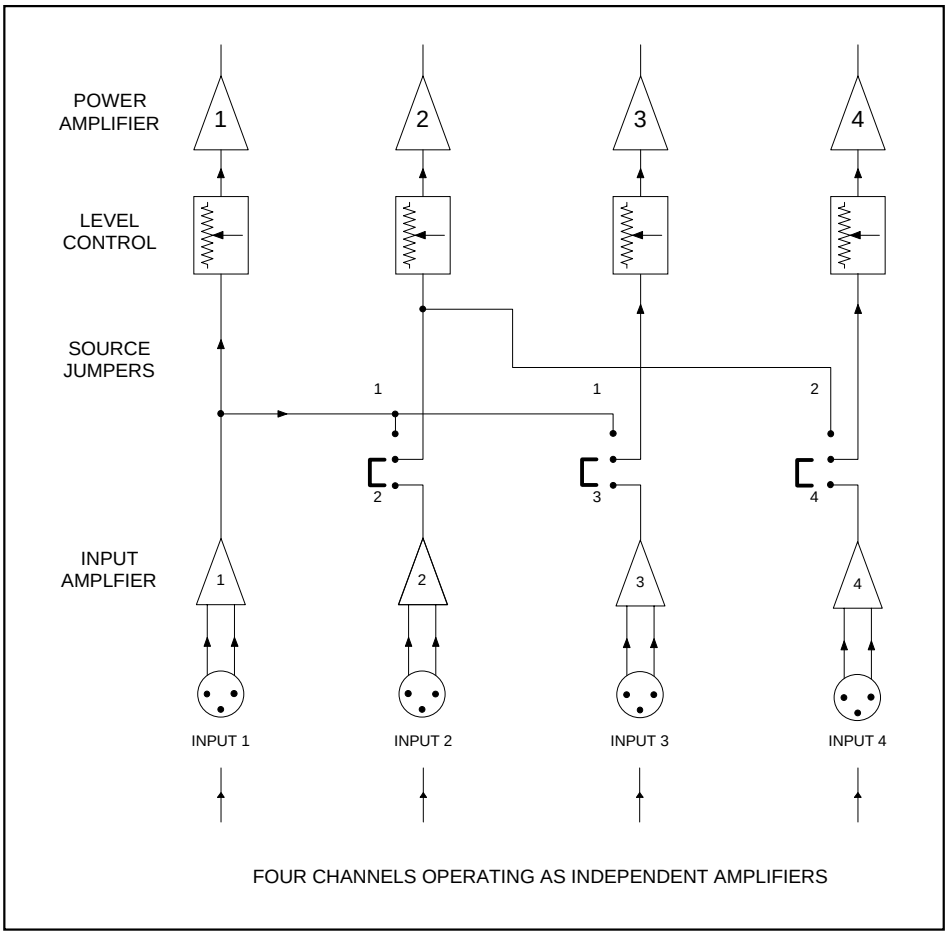
Each input has a level control adjacent to the respective XLR type connector. PCB mounted jumpers provide input routing on channels 2, 3 & 4 allowing a wide variety of input routing configurations. See the schematic diagrams showing details of various routing possibilities.

In its default configuration, the unit operates as four independent amplifiers.
Two stereo pairs, driven from one stereo source and four channels driven from one mono source are also possible together with a combination of the two by suitably configuring the input routing jumpers.





TWO STEREO PAIRS FROM ONE STEREO SOURCE



FOUR CHANNELS OPERATING AS INDEPENDENT AMPLIFIERS

5 Output Details

Binding posts are provided on the rear panel for the four speaker outputs and these can accommodate flexible leads up to 2.50mm². The output connector is not compatible with 4mm 'Banana' plugs. Do not make any connections to the unit with the power cable attached. It is good practice to distance the output wiring from the input wiring.

6 100V Line operation

The Cloud CXL-400 four channel 100V line module is available as an accessory to the CX-A200. It is rated at 40 watts per channel and optimally matches the CX-A200 power amplifier. The module is designed to fit inside the CX-A200 chassis. The CXL-400 can be operated at full power at frequencies as low as 40Hz without the risk of saturation. Operation at lower frequencies with high input levels may result in the transformer saturating and the amplifiers VI limiter operating. The unit can be configured for 70V operation by means of wire links on the PCB.

7 Bridged Mono Operation

The unit can operate in Bridged Mode using any two channels. The inputs must be wired together by linking the input signal at the XLR connectors of the two relevant channels, wiring the "second" input out of phase (i.e. pin 1 ground, pin 3 in-phase, pin 2 reverse phase). The input level controls of the two channels should both to be set to the fully clockwise position.

The output load should then be connected between the two red binding posts of the relevant channels (no connection to the black binding posts of the relevant channels), ensuring that the positive wire is connected to the "first" red binding post and the negative wire is connected to the "second" binding post.

For example, it is possible to configure four channels as two bridged outputs allowing a stereo input to be delivered to two 100 watt 8 ohm outputs.

8 Status Indicators

The front panel of the CX-A200 has an array of LED's which indicate the status of all four channels. The lower green LED illuminates when a signal exceeding 500mW is detected, the yellow 'peak' LED will illuminate when the amplifier output is close to clipping and the top red LED indicates that the protection relay has disconnected the load. Please note that it is normal for all four red LED's to illuminate for approximately five seconds when the unit is switched on, indicating operation of the switch-on delay circuitry. The lower green LED indicates that the power is switched on.

9 VCA Modules

A two channel VCA module is available as a plug-in option and the CX-A200 can be fitted with two VCA modules. Each VCA module can be supplied with either one or two control plates. The unit can operate two channels independently or wired to provide stereo attenuation via one control plate. The remote rotary control plate is compatible with UK domestic electrical accessories and can be mounted onto a standard British flush or surface mounted 25mm deep back box. Two core cable with overall screen should be used to connect the remote level control to the module mounted inside the CX-A200. The

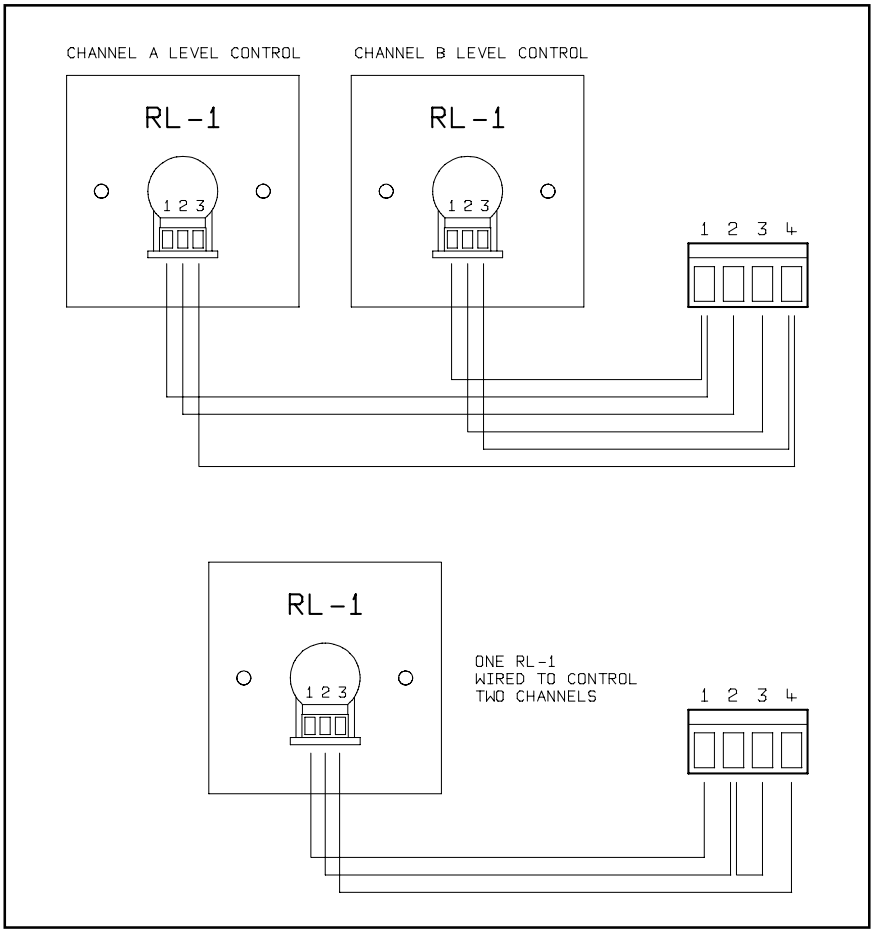
circuitry uses the industry standard 'Thats 2150A' VCA providing very low distortion and up to 90dB attenuation. The VCA module can be wired to provide muting by using an auxiliary relay connected to a fire alarm control panel. See section 11 'Remote Level Plate Connections' for wiring details.

10 Fitting a VCA Module

Remove the power cable before commencing. Remove the top panel from the CX-A200 then remove the relevant connector cover from the rear panel of the unit. Locate the 10 pin male header (CON1 for inputs 1 & 2 and CON2 for inputs 3 & 4) then remove the two jumpers from the 10 way header (male connector). Remove the PCB fixing screw(s) adjacent to the 10 way connector and fit the two 40mm M3 mounting spacers into the two positions next to CON1 or CON2. Carefully position the VCA module so that the 4 pin connector is located just through the hole in the rear panel and locate the 10 pin female ribbon connector on the module accurately on to the header. Make sure that the module is accurately positioned and check that the connector is mating with all 10 pins. Secure the module with the two M3 screws provided and replace the top panel.

11 Remote Level Plate Connections

The VCA module is a two channel device providing voltage controlled level adjustment for two independent channels or one stereo pair. The 4 pole connector can be wired to allow two RL-1 level plates to control individual channels or one RL-1 controlling two channels simultaneously for stereo applications. Use two core screened cable to interconnect the remote level plates.



12 Field Servicing

The CX-A200 is ruggedly built and uses proven reliable circuitry. It requires no more than the occasional removal of any dust that may have built up inside the unit as a result of the forced cooling. In the unlikely event of failure, the power amplifier module (4 channels) complete with power supply components and input circuitry can be replaced without special tools and is available as a tested replacement assembly complete with heatsink. Proceed as follows to replace the power module:

Disconnect all the leads and connectors from the rear of the unit.
Ensure that the mains supply lead has been disconnected.
Remove the CX-A200 from the equipment rack.
Remove the top panel.
Remove the 10 way ribbon cable and the four spade terminal which connect the transformer. Disconnect the red and black fan supply wires.
Remove the VCA modules (if fitted) complete with the mounting spacers.
Remove the eight fixing screws from the input connectors and the two fixing screws from the output connectors. Now remove the PCB fixing screws and carefully remove the PCB
Now fit the replacement unit by proceeding in reverse order.
No setting up is required and the unit should operate normally.

13 General Specifications

Inputs	Balanced via 3 pin XLR type connectors
Outputs	Binding Posts for flexible cables up to 2.5mm²
Protection	VI limiting, DC offset, Thermal and Switch-on Delay
Status Indicators	LED indicators on each channel for Signal, Peak &Protect
Cooling	Force cooled using three speed DC fan
Dimensions	482.6mm x 88.0mm (2U) x 300.0mm deep (+ connectors)
Weight	6kg net

14 Technical Specifications

Rated output	50 watts/4 ohm load 35 watts/8 ohm load
Bridged Output	100 watts/8 ohm load
Frequency Response	±1dB 10Hz to 50kHz
THD	<0.05% 20Hz/20kHz 8 1dB below rated output
VCA Module THD	<0.03% 20Hz/20kHz
Input Sensitivity	0dBu (775mV)
Input Impedance	10k balanced / 5k unbalanced
Noise	>90dB below rated output
Slew Rate	10V/µS (power amplifier)
Power Input	230V ±5% (115V ±5% available)
Fuse rating	230V - T3.15A 115V - T6.3A
Fuse type	20mm x 5mm class 3T 250V

This product conforms to the following European Standards
EN 50081-1: 1992
EN 50082-1: 1992
EN 60065 : 1994

CE

SAFETY CONSIDERATIONS

CAUTION - MAINS FUSE

TO REDUCE THE RISK OF FIRE REPLACE THE MAINS FUSE ONLY WITH THE SAME TYPE, WHICH MUST BE A CLASS 3, 240 VOLT, TIME DELAY TYPE, RATED AT 3.15A WHERE THE MAINS INPUT VOLTAGE IS SET TO 230 Volts ± 5% AC. FOR A MAINS VOLTAGE OF 115 Volts ± 5% AC. THE FUSE SHOULD BE RATED AT 6.3A
THE FUSE BODY SIZE IS 20mm x 5mm.

CAUTION - SERVICING

THIS UNIT CONTAINS NO USER SERVICEABLE PARTS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL. DO NOT PERFORM ANY SERVICING UNLESS YOU ARE QUALIFIED TO DO SO.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

10/09/99