

CXV-425 : Direct Drive Amplifier

482.6mm / 19"



132.5mm
/ 5¹/₈"
(3U)

Cloud CXV-425 front view



Cloud CXV-425 rear view

General Description

The Cloud CXV-425 is a high-power, 4-channel power amplifier designed specifically for driving 100 V-line speaker systems. The CXV-425 belongs to a new range of Cloud amplifiers whose design dispenses with conventional output transformers. They are the perfect solution for large commercial and industrial applications.

The availability of new high-voltage semiconductor devices, combined with other advances in circuit design have made the implementation of a transformerless output stage a practical proposition, resulting in a considerable saving in cost and weight over conventional 100V-line amplifiers. Omitting the transformer also results in improved audio performance, producing an extended frequency response and lower distortion figures when compared with earlier, transformer-coupled output designs. This makes the CXV-425 suitable for use with 100 V-line systems required to reproduce music with good fidelity.

The CXV-425 is a four-channel amplifier in a 3U chassis. Each channel can deliver 250 W into 40 ohms. The amplifier is forced-air cooled by two rear-mounted, thermostatically-controlled fans. The output stage is protected against DC, over-temperature and short-circuits, and a switch-on delay isolates the output terminals until internal voltage rails have settled.

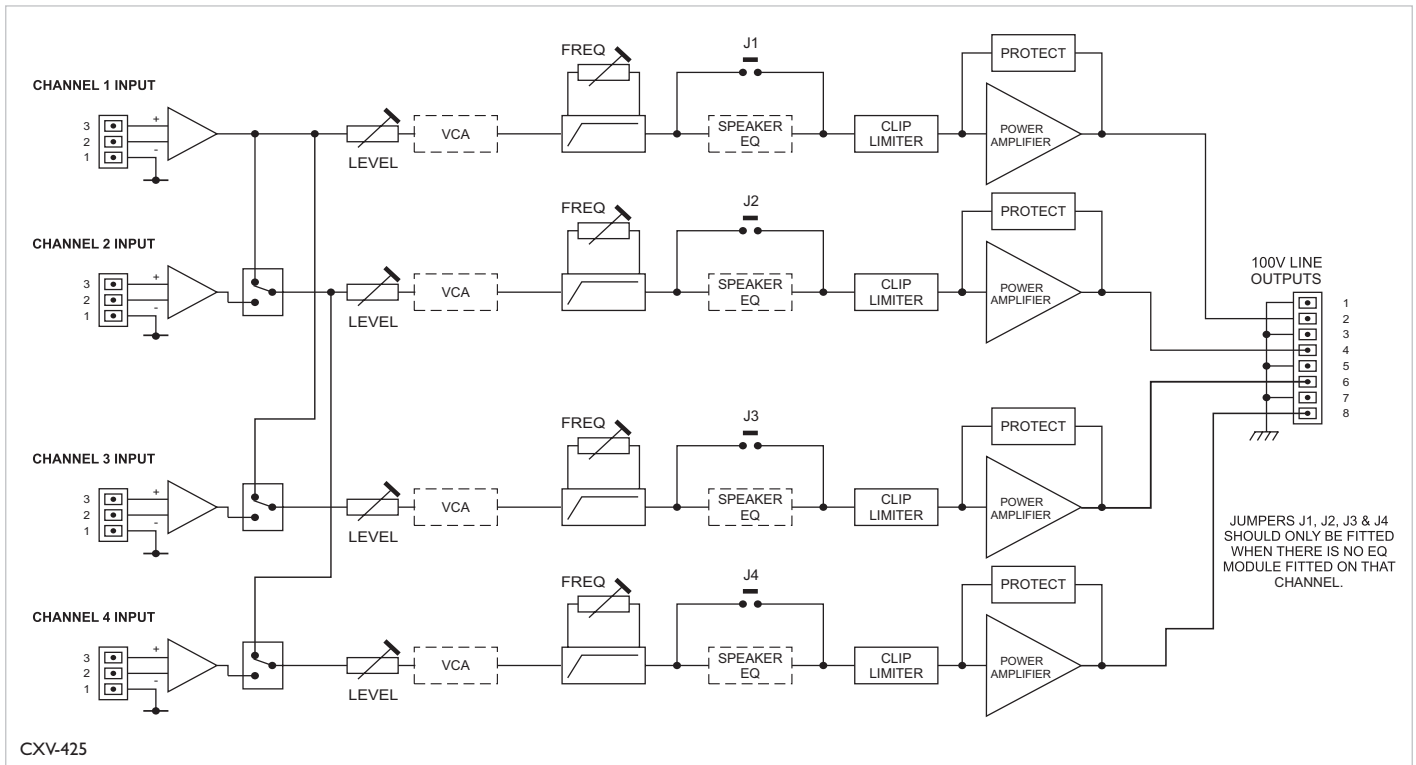
Each channel is provided with an electronically-balanced line input, a rear-panel preset gain control and an input routing system which simplifies 1, 2 or 4-channel operation with mono or stereo signals. A variable-frequency high-pass filter is also included to minimise the possibility of loudspeaker transformer saturation. Front panel signal presence, peak level and protection LEDs are fitted.

Optional per-channel VCA cards are available for the CXV-425, making it compatible with standard Cloud RL-I remote level control plates. Plug-in Bose® EQ cards are also available.

- Transformerless output stage for directly driving 100 V-line systems
- 250 W/channel output power
- Output stage clip limiter
- Output DC protection
- Thermal protection
- Switch-on delay for speaker protection
- Front panel per-channel Protect, Peak and Signal LEDs
- Balanced line inputs (0 dBu)

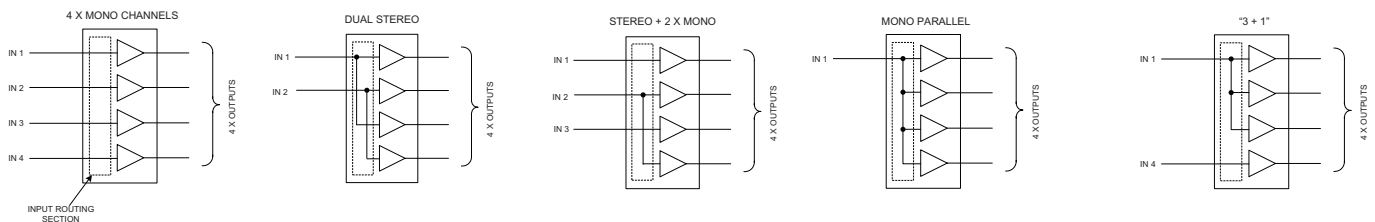
- Per-channel level controls
- Input routing switches
- Per-channel high-pass filter, adjustable 20 Hz – 200 Hz
- Optional per-channel Bose® EQ cards available
- Per-channel VCA card option permits remote volume control
- Compatible with Cloud RL-I remote control panel
- Dual fan forced-air cooling
- 3U rack-mounting unit

Block Diagram

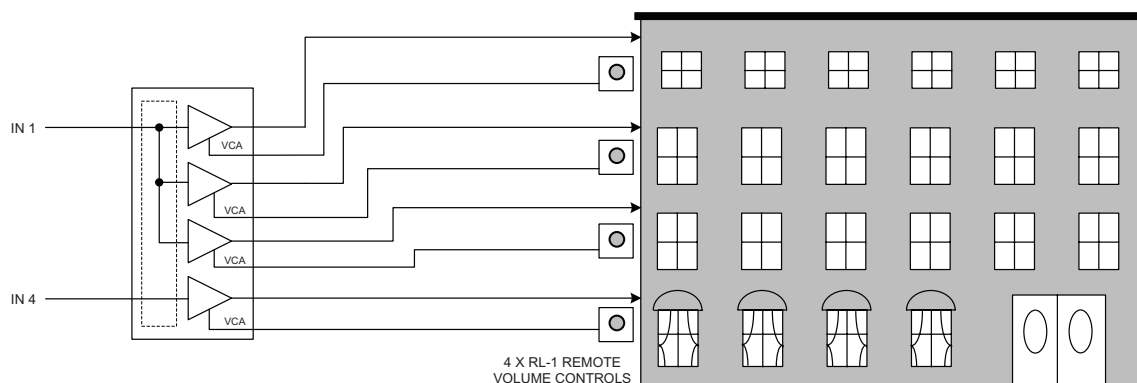


System Example - Driving Ceiling Speakers In Two Zones

The input routing switches of the CXV-425 permit mono, stereo or 4-channel operation without any external parallel wiring. Some possibilities are shown below:



The advantage of 100 V-line working is that larger numbers of loudspeakers can be connected in parallel using longer cable runs than is possible with lo-Z systems. The four channels of a CXV-425 might be used to drive ceiling speakers on each floor of a building, one floor being provided with a separate feed to the other three. Separate remote level controls are fitted on each floor.



Technical Specifications

Performance

Output Power/Ch.	100 Vrms; 250 W into 40 Ω min. load
Frequency Response	20 kHz -0.6 dB; LF response dependent on filter setting
High Pass Filter	-3 dB @ 20 Hz – 200 Hz variable
Distortion	<0.04% @ 1 kHz & 1 dB below limiting, 40 Ω load
Crosstalk	-80 dB @ 10 kHz

Inputs

Type & connectors	Electronically balanced; 3-pin, 3.5 mm-pitch plug-in screw terminal connectors (4)
Sensitivity	0.775 Vrms (0 dBu)
Input Impedance	10 k Ω balanced, 5 k Ω unbalanced
Noise (rms)	-96 dB, 22 Hz – 22 kHz, relative to 100 Vrms

General

Output Connectors	2-pin 5 mm-pitch plug-in screw terminal connectors (4)
Power input	230 V $\pm$ 5%
Fuse rating	230 V, 5 A
Fuse type	T5A, 20 mm x 5 mm 250 V
Protection	Clip Limiting, VI Limiting, DC Offset, Thermal & switch-on delay
Status Indicators	LED Indicators on each channel for Signal, Peak & Protect
Cooling	Force cooled; internal variable speed DC fan
Dimensions (W x H x D)	482.6 x 132.5 (3U) x 332 mm (+ connectors)
Weight	21 kg net

Architect's and Engineer's Specification

The solid state power amplifier shall have four identical channels. Each channel shall be capable of driving 250 W into 40 ohms. The output stage shall be able to drive 100 V-line loudspeaker systems directly, and will be of transformerless design.

The amplifier's front panel shall incorporate an AC power switch, Power On LED and LEDs indicating Signal Present, Peak Level and Protect status for each channel. The Signal Present LEDs shall illuminate at 29 dB below full output with respect to 0 dBu input sensitivity. The Peak LEDs shall illuminate at the onset of limiting at 100 Vrms output. The Protect LEDs shall indicate activation of the output protection circuitry.

The amplifier shall be provided with one input per channel and be able to operate in the following configurations as a minimum: all channels independent, one input feeding all channels or two inputs feeding the amplifier channels in pairs for dual stereo operation. Signal level adjustment will be provided for each channel via a rear panel control permitting a range of operation from 85 dB attenuation (mute) to unity gain (max.) The inputs shall be electronically balanced and capable of operating with both balanced and unbalanced sources. The input impedance shall be not less than 10 k Ω (balanced). The input connectors shall be of Euroblock type. Each input shall be equipped with a high-pass 2nd order filter with a rear panel control allowing adjustment of turnover frequency in the range 20 Hz to 200 Hz.

It shall be possible to fit an optional VCA card to any or all channels to allow remote control of input level. The remote control connector shall be of Euroblock type.

It shall be possible to fit optional BOSE® Series II EQ cards to any or all channels.

Each channel output stage shall utilise Class AB operation with full DC crowbar protection. The amplifier shall deliver 100 Vrms output from an input signal of 0 dBu with input level controls set at maximum. Relay-based output mute protection on power-up (4 sec) and thermal protection shall be provided. The amplifier will also be protected against short-circuits at the output, and excessive output voltage or current. The gain of the amplifier shall be fixed at 43 dB. The amplifier outputs shall be on Euroblock connectors with safety provision in the form of a user-removable plate. Cable entry and retention within the plate is to be provided by glands suitable for cable diameters between 4 and 8 mm (0.16 and 0.32 in).

Cooling shall be by a forced air low-noise variable speed fan, allowing operation in ambient temperatures up to 40°C (104°F). The amplifier shall be built in a steel chassis suitable for mounting in a standard 19" equipment rack, and occupy three rack spaces.

The power amplifier shall be the Cloud CXV-425.