



GUARDIAN CX4

MK2

USERS MANUAL

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MK2

The Guardian CX4 MK2 basically performs the same functions as the original CX4 but with added features and options:-

- Dual mains voltage operation as standard (internally switchable).
- Choice of control modes i.e. Voltage or Switch.
- Choice of control sense i.e. Voltage mode - volts applied to trigger, or volts removed to trigger: Switch mode - N.O. or N.C. contacts to trigger
- Control options are all selectable by PCB jump plugs located behind the removable front cover.
- Improved noise limiter section incorporating a slow acting average limiter and a separately adjustable peak limiter.

Introduction

The Guardian CX4 MK2 has dual functions.

Its main function is to provide a priority input into an audio system.(Priority Override).

A secondary function is incorporated to control the maximum operating level in entertainment venues. (Noise limiter)

Priority Override

The Guardian CX4 has been designed to be connected between the mixer (or pre amp) of an audio system and the power amplifiers. The unit is a four channel device usually connected as two stereo pairs.

The unit is not restricted to entertainment venues and may be used with any sound system where a priority override facility is required e.g. Shopping centres, malls, cruise ships, and any public area where security or important announcements are required.

The priority input may be a microphone or line level source (selectable internally). When the unit is not triggered the priority input signal is available at the priority output socket. This is so that a microphone which is in normal use (i.e. DJ, MC, or compère) may also be used as the priority input.

Operation

In the normal mode programme signals pass through the four audio channels of the CX4 with no change in level. When the unit is triggered the incoming programme level is attenuated and the priority signal is mixed into the four outputs. When the unit is reset the priority signal is removed and the programme will fade back to the original volume.

The amount of attenuation and the priority level can be adjusted by pre-set controls located under the front cover panel.

L.e.d. indicators of LIMIT, PEAK and PRIORITY are provided on the front panel to show the status of the unit. Terminals are provided on the rear panel for the connection of remote indicators.

Balanced inputs and outputs are provided which may be strapped unbalanced with no signal loss.

Control input (trigger)

The control input may be configured for voltage or switch operation. Jumpers located behind the front panel set the two options and are labeled CONTROL SELECT. The position of two jumpers determine Voltage or Switch mode (be sure to move both jumpers).

Adjacent is a jumper labeled CTRL SENSE. This jumper allows the unit to be controlled by:- (voltage mode) voltage applied or voltage removed: (switch mode) normally open (N.O.) or normally closed (N.C.) switch contacts.

The factory setting is voltage mode. Volts applied to trigger the voltage required is (18-24Vdc). The current required is minimal, only 10mA. The polarity is not critical. This voltage may be provided by the fire alarm panel or other suitable source.

Reset

For maximum flexibility two modes of reset are provided - Automatic and Manual. The type of reset is selected by a jumper positioned above the reset button located behind the removable front panel. If Auto reset is selected the unit will automatically reset when the trigger signal is removed. If manual reset is selected pressing the reset button after the trigger signal has been removed resets the unit.

Test

A test button for initial set up and testing is also provided and is locate adjacent to the reset button. Both reset and test buttons can be operated through small holes in the front panel using a suitable object, small screwdriver, match, etc.

Noise Limiter

The Noise limiter function has been provided to control the maximum permitted noise level in an entertainment venue (Often necessary when having to conform to noise pollution requirements).

The unit monitors the level in channels 1 and 2 (the main programme channels) and if this combined level exceeds the limiter threshold the LIMIT indicator illuminates and the level will be reduced back to the threshold level. This limiter is controlled by the average programme content and is fairly slow acting so as not to reduce the dynamics of the music. (An internal jumper is provided to allow a faster operation if required).

The adjacent Peak limiter threshold preset allows the user to determine the maximum peak level allowed. The peak limiter setting follows the average limiter preset so once set, even if the average limiter is re adjusted, the peak will not require readjusting. So for example if the level in the system were to be increased rapidly the level would only increase to the peak level. (The peak limiter is a much faster acting limiter.)

By setting the average and peak presets maximum levels can be maintained without undue programme compression taking place so the music will still sound punchy and bright. But the system will be protected from undue peaks that could cause damage.

Either of the limit or peak functions can be disabled by turning the threshold preset fully clockwise.

Internal options

N.B. Internal settings should be undertaken by skilled personnel only

DISCONNECT THE UNIT FROM THE MAINS SUPPLY

Remove the top case cover by removing 6 screws located at the sides of the unit and 2 screws located on the top of the unit. (Re-assemble in the reverse order)

Mains Voltage

The CX4 Mk2 has been designed to operate on 220-240Vac or 110-115Vac. A slide switch located on the PCB behind the mains input connector is provided to select the operating voltage. The voltage selected is displayed on the switch 230 (220-240V) 115 (110-120)

DAMAGE MAY RESULT IF THE UNIT IS CONNECTED TO THE WRONG SUPPLY VOLTAGE

THIS UNIT MUST BE EARTHED

Fuses

Mains fuse sizes are 250mA anti surge for 220-240V operation and 500mA anti surge for 110-115V operation. **It is important for safety reasons that the correct fuse sizes are always used.**

Priority input selector

The priority input selector is located behind the priority in/out sockets - two jumpers select mic or line input. A label showing the jumper positions is provided. (Be sure to move both jumpers) The factory setting is for a Microphone input.

Earth lift

A jumper is provided to lift the audio common (0VE) from mains earth. This may be necessary in some installations. A skilled audio system specialist should determine if this is necessary, otherwise this should be left in the factory supplied or normal position.

Limiter time constant

As described in the noise limiter section a jumper is provided to allow some adjustment to the limiter speed. This jumper is located towards the left center of the PCB viewed from the front and is clearly labelled.

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GUARDIAN CX4 MK2 TECHNICAL SPECIFICATION

| | | |
|---|---|--------------------|
| Gain | Normal operation, unity gain +0dB -1dB | |
| Frequency Response | 20Hz - 30KHz + 0.5dB -1dB | |
| Distortion THD @ 1KHz | O/P +20dBU <.015% (Typically .007%) | |
| Noise | < -90dBU EIN | |
| Inputs | Balanced | |
| Connector type | XLR | |
| Input impedance | > 30K Ohms | |
| Max input level | +22dBU | |
| Outputs | Electronically balanced | |
| Connector type | XLR | |
| Max O/P level | +22dBU into 600R load | |
| Controls | Situated behind removable security panel | |
| 1 | Priority input level all channels. | |
| 2 | Priority input level channels 3&4 (allows chans 3&4 to be lower than chans1&2) | |
| 3 | Limit threshold.(average) adjustable range -20dBU to +22dBU | |
| 4 | Peak threshold allows the peak limiter to be set above the average limit threshold | |
| 5 | Attenuation channels 1&2. Range 0dB to -60dB (factory setting -20dB) | |
| 6 | Attenuation channels 3&4. Range 0dB to -60dB (factory setting -20dB) | |
| 7 | Reset momentary action push button (adjacent jumper position determines the type of reset - auto or manual. | |
| 8 | Test momentary action push button. (For set-up and testing) | |
| Priority input | Internally selectable Mic - Line | |
| Connector type | XLR in and out | |
| Set to Mic | Low impedance. Balanced. Max gain 70dB | |
| Set to Line | 10K Balanced. Max I/P level +30dBU | |
| Visual indicators | Power - | 2 x Green L.E.D.s. |
| | Limit | Red L.E.D. |
| | Peak - | Amber L.E.D. |
| | Priority override - | Red L.E.D. |
| Auxiliary connections | 6 Way screw terminal connector | |
| Control input | Pins 1 & 2 18V - 24V DC (Voltage mode) Isolated switch contacts (Switch mode) | |
| Remote indicator outputs | Pin 3 - Limit Pin 4 -.Peak Pin 5 - Priority. Pin 6 - OVE common | |
| Outputs will drive L.E.D.s. directly without series resistors. They will also drive suitable solid state relays to drive mains voltage indicators | | |
| Dimensions | 19" rack mounting. 1RU Width 482mm (19") Depth 206mm (8.1") Height 44mm (1.75") | |
| Finish:- | Front - and Rear panels- Black anodised aluminium with silver notation which will not rub off in use. Case - black plastic coated steel. | |
| Power IEC Connector | 200 - 240V AC. Mains Fuse 250mA Anti Surge (slow blow) 110 - 115V AC. Mains Fuse 500mA Anti Surge (slow blow) | |