

# GUARDIAN CX4 Mk2



The Guardian CX4 Mk2 is a second generation product based upon the original CX4 but with added features and functionality.

The CX4 is a 19" 1RU package that is a very useful tool to the systems engineer and installer. It has applications in a wide variety of audio entertainment systems.

With the increasing demand for stricter fire and noise control regulations the CX4 effectively solves the two major regulatory

problems encountered in entertainment venues, namely interfacing the audio system to the fire alarm and enforcing the maximum allowable noise level produced by the audio system.

After consultations with fire and environmental health officers (EHO's) the brief which evolved required that, in order to avoid panic when a fire alarm activates, the programme level in the venue should be reduced and not cut altogether, and the evacuation signal, microphone or

recorded message should be provided automatically at a level agreed by the fire officer. The EHO requirement is that the audio system should be controlled to a maximum allowable level.

The Guardian CX4 Mk2 provides all this and more with full adjustment of all necessary parameters tucked away behind the front cover, which is removable, without the need to take the unit from the equipment rack.





The CX4 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 unit will interface with any existing or new sound installation. It is a four channel device and has two distinct functions.

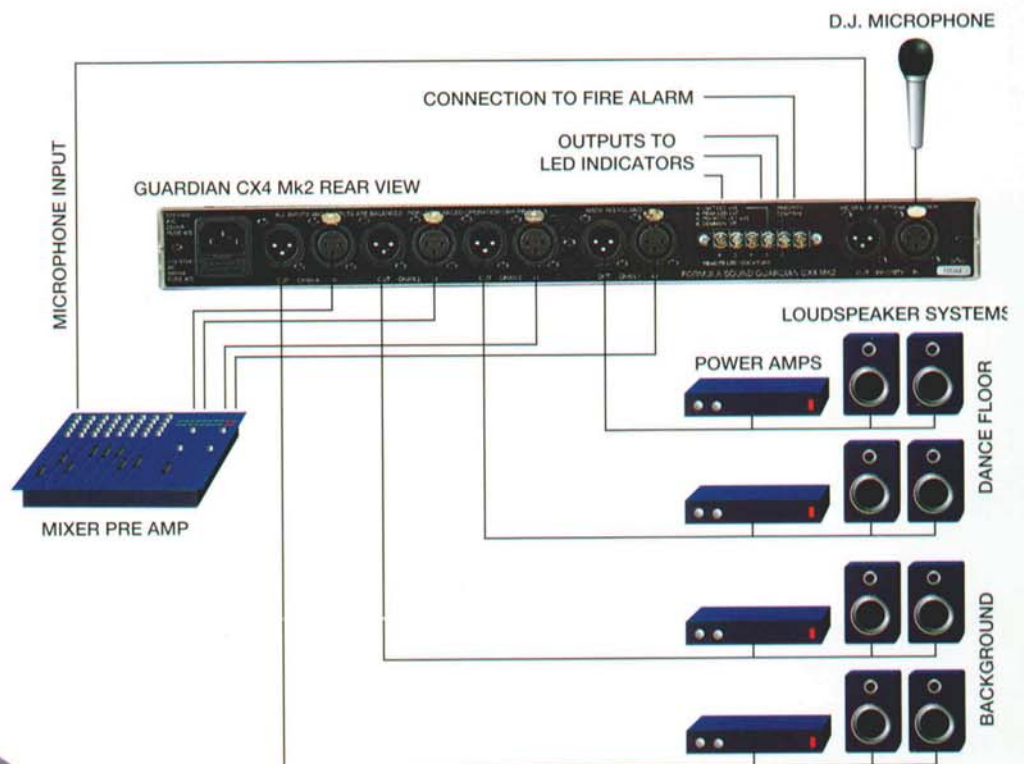
### Priority Override Operation

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 may be connected to four channels of audio, normally two stereo pairs. The priority input (which may be a microphone or line level source, selected internally) is connected to the priority input socket. 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.

The control input is connected to the fire alarm or other triggering device. When the unit is triggered the programme level in all four channels will be attenuated and the priority signal automatically mixed into all four outputs. When the unit is reset the programme will fade back to the original volume.

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

### TYPICAL CONNECTION - CLUB



## Triggering and Reset Options

All triggering and reset options are set by the position of jump plugs accessible by removing the front security cover.

The CX4 Mk2 has a choice of control modes i.e. Voltage or Switch and a choice of control sense.

**Voltage mode:** -volts applied to trigger, or volts removed to trigger: (voltage range 15-24V DC).

**Switch mode** N.O. or N.C. contacts to trigger. Reset may be set to be automatic or manual. If selected to be automatic the unit will reset when the control signal is removed. If selected to be manual the unit will only return to normal operation when the reset button has been pressed.

Test and reset push buttons are provided for initial setting up and testing - operational through small holes in the security cover.

## 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 control allows the user to determine the maximum peak level allowed. The peak limiter setting follows the average limiter control 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 controls 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.

## Visual indicators

L.e.d. indicators of PRIORITY, LIMIT, and PEAK are on the front panel.

Connections are provided on the rear panel for connecting remote indicator L.e.d.s.

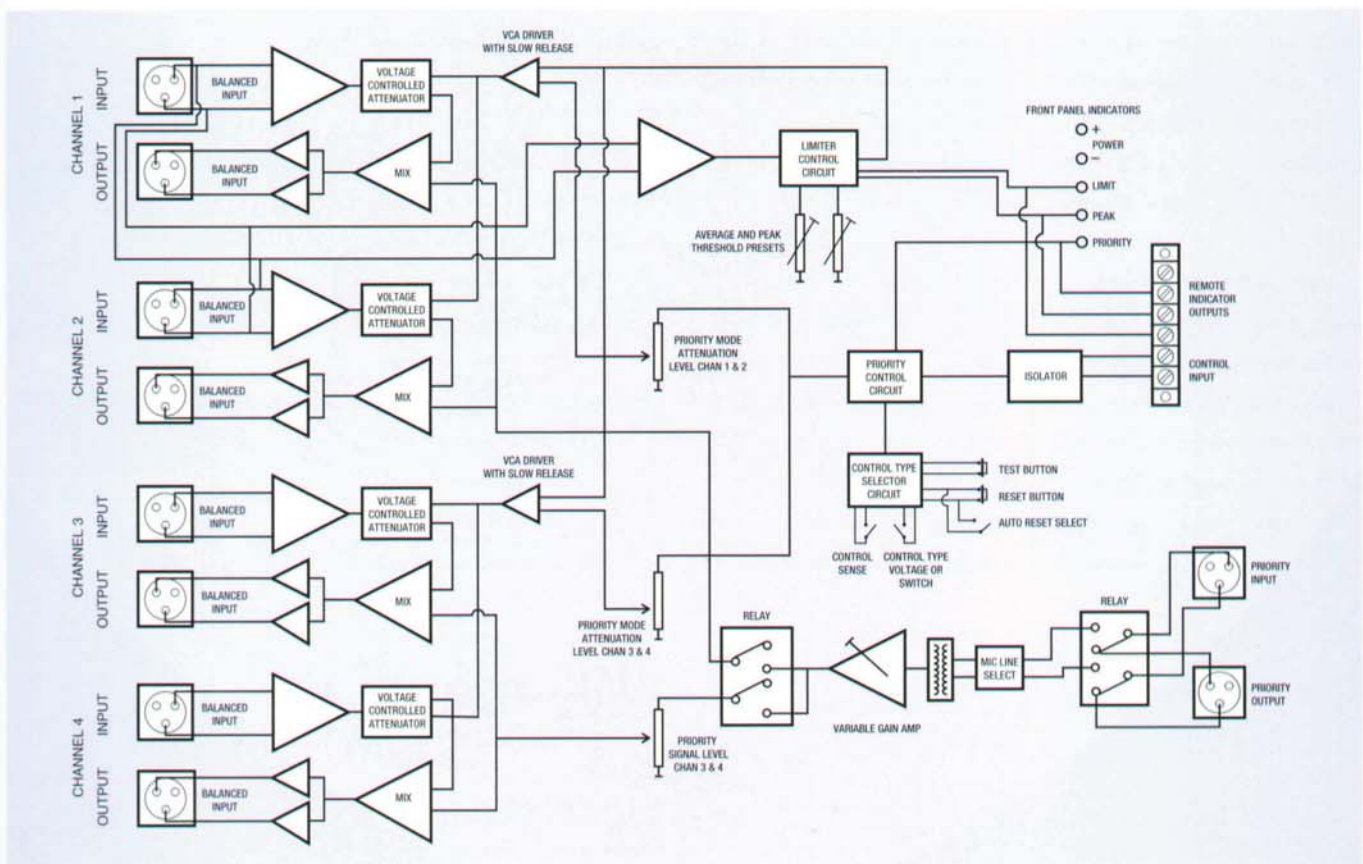
## Controls

All controls are accessible by removing the security front panel.

Six rotary controls are provided:-

- 2 set the attenuation level of channels 1-2 & 3-4.
- 2 controls adjust the priority signal level into channels 1-2 & 3-4.
- 2 controls set the limiter thresholds.

## GUARDIAN CX4 MK2 BLOCK DIAGRAM



# 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. <ol style="list-style-type: none"> <li>1. Priority input level all channels.</li> <li>2. Priority input level channels 3 &amp; 4 (allows 3 &amp; 4 to be lower than 1 &amp; 2).</li> <li>3. Limit threshold (average) adjustable range -20dBu to +22dBu.</li> <li>4. Peak threshold allows the peak limiter to be set above the average limit threshold.</li> <li>5. Attenuation channels 1 &amp; 2. Range 0dB to -60dB (factory setting -20dB).</li> <li>6. Attenuation channels 3 &amp; 4. Range 0dB to -60dB (factory setting -20dB).</li> <li>7. Reset momentary action push button (adjacent jumper position determines the type of reset - auto or manual).</li> <li>8. Test momentary action push button. (For set-up and testing).</li> </ol>
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. Priority input socket is connected to Priority output socket until the unit is triggered.
Visual indicators:	Power - 2 x Green L.e.d.s. Limit - Red L.e.d.s. Peak - Amber L.e.d.s. Priority override - Red L.e.d.s.
Auxiliary connections:	6 way screw terminal connector.
Control input:	Pins 1 & 2 15V - 24V DC (Voltage mode). Isolated switch contacts (Switch mode).
Remote indicator outputs:	Pin 3 - Limit. Pin 4 - Peak. Pin 5 - Priority. Pin 6 - 0VE 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.
Internal Selection:	200 - 240V AC. Mains Fuse 250mA Anti Surge (slow blow). 110 - 115V AC. Mains Fuse 500mA Anti Surge (slow blow).



Formula Sound Ltd.

Ashton Road, Bredbury, Stockport SK6 2SR, England.

Tel +44 (0)161-494 5650 Fax: +44 (0)161-494 5651

e-mail: [info@formula-sound.com](mailto:info@formula-sound.com)

website: <http://www.formula-sound.com>