



GlenSound

# **GS-CU001G MKII**

**Stand Alone Commentary Box**

**PRODUCT DETAILS**





# GlenSound Electronics Ltd

Thank you for choosing a new GlenSound product.

All rights reserved.

Information contained in this manual is subject to change without notice, if in doubt please contact us for the latest product information.

If you need any help with the product then we can be contacted at:

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## **PRODUCT WARRANTY:**

All equipment is fully tested before dispatch and carefully designed to provide you with trouble free use for many years.

We have a policy of supporting products for as long as possible and guarantee to be able to support your product for a minimum of 10 years.

For a period of one year after the goods have been despatched the Company will guarantee the goods against any defect developing after proper use providing such defects arise solely from faulty materials or workmanship and that the Customer shall return the goods to the Company's works or their local dealer.


All non-wear parts are guaranteed for 2 years after despatch and any defect developing after proper use from faulty materials or workmanship will be repaired under this warranty providing the Customer returns the goods to the Company's works or their local dealer.



## EU DECLARATION OF CONFORMITY FOR:

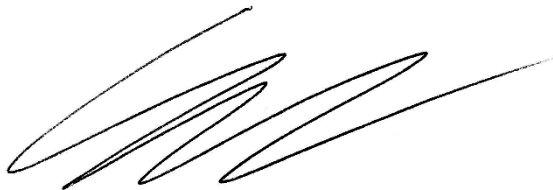
### **GS-CU001G MKII** *Stand Alone Commentary Box*

This declaration of conformity is issued under the sole responsibility of the manufacturer.

This equipment is manufactured by Glensound Electronics Ltd of Brooks Place Maidstone Kent ME14 1HE is  marked and conforms to the following Union harmonisation legislation:

Low Voltage Directive:	EN60065 and EN62368-1:2014
Emissions:	BS EN55032:2015
Immunity:	BS EN55035:2017

Signed for and on behalf of Glensound Electronics Ltd.



Gavin Davis, Managing Director  
Maidstone, Kent, England

Date: January 2018

# RoHS DIRECTIVE

RoHS 2 Directive 2011/65/EU restricts the use of the hazardous substances listed below in electrical and electronic equipment.

This product conforms to the above directive and for this purposes, the maximum concentration values of the restricted substances by weight in homogenous materials are:

Lead	0.1%
Mercury	0.1%
Hexavalent Chromium	0.1%
Polybrominated Biphenyls	0.1%
Polybrominated Diphenyl Ethers	0.1%
Cadmium	0.01%

# **WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT REGULATIONS 2006 (WEEE)**

GlenSound Electronics Ltd is registered for business to business sales of WEEE in the UK our registration number is:

**WEE/JJ0074UR**

# GLENSOUND GS-CU001G MKII

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Issue 1

### Description

### Page No.

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## **OVERVIEW**

The Glen sound GS-CU001 MKII range are stand alone (need no for a base station) commentator's boxes. They are designed to be rugged and withstand being used regularly in outside broadcast environments.

Facilities are provided to allow 2 Commentators and 1 Guest to contribute to 1 single programme, with provision for the Commentators to monitor multiple incoming audio feeds in their headphones and also to be able to talk to a number of outgoing feeds such as programme and talkback circuits.

This new MKII range of GS-CU001 units follows on from the very popular original versions and they provide extra facilities and improved audio performance.

Installation of the units is very simple with analogue audio cables being connected at the rear. Only the incoming and outgoing audio circuits that are needed for the programme need be connected making some installations very simple with just 1 'mixed programme' output being connected and 1 return monitoring audio for the commentators being required. Other installations will of course utilise all the GS-CU001 MKII's facilities and will have a number of audio XLR cables attached to the rear of the unit.

Operation by the Commentator's is also very simple and the user interface is designed to be very similar to our wide range of other commentary units that we have manufactured, this means that the GS-CU001 MKII user's interface should be immediately recognisable to most Commentators and easy to use.

For versatility, the functionality of the Mic on buttons and talkback keys can be set by the broadcaster to work in any way that they want, with a simple programming structure that can be set in the field without the use of a pc.

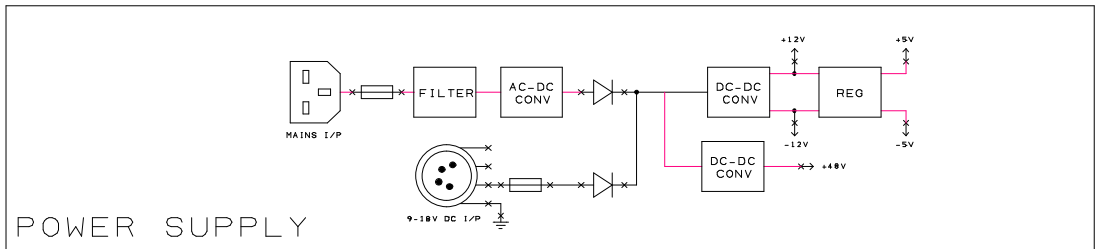
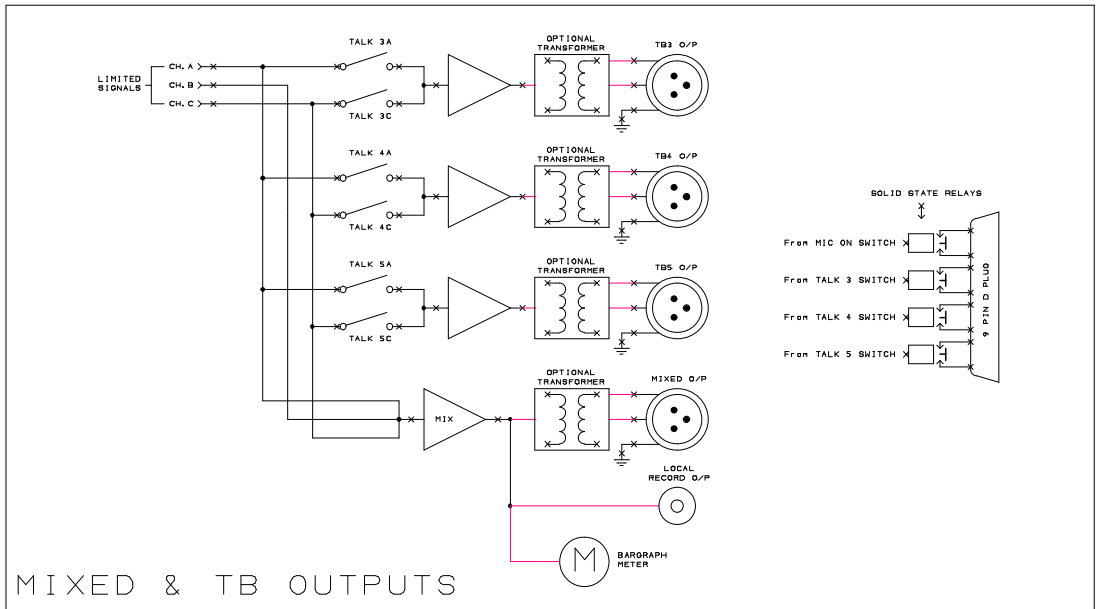
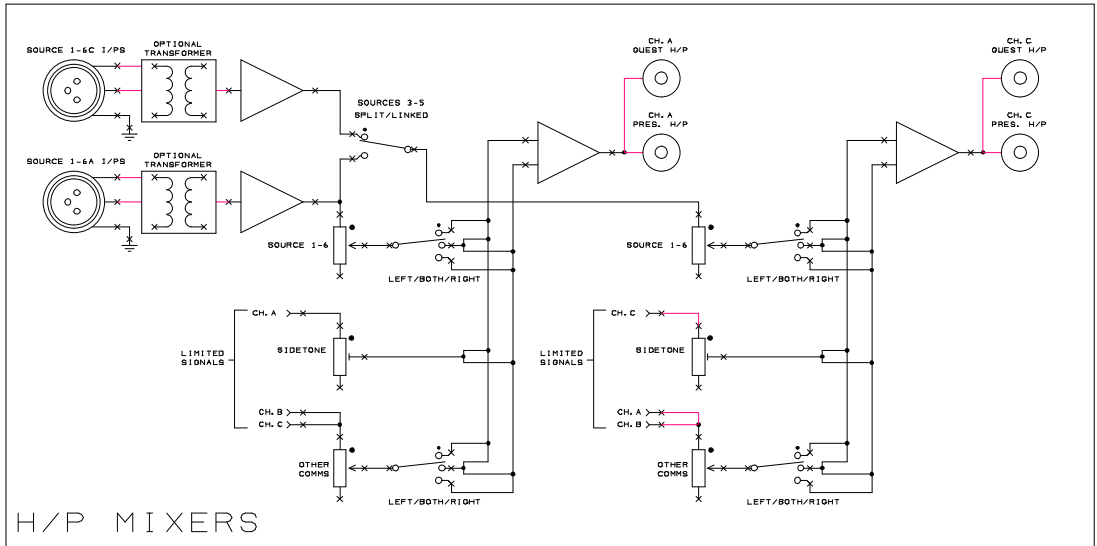
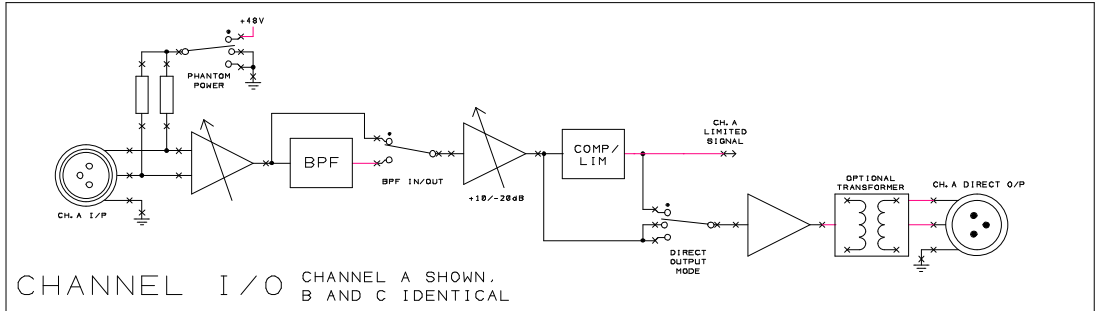
## **VARIANTS COVERED BY THE MANUAL**

The Glensound GS-CU001 MKII is available in many variants. Some manufactured in very small quantities as virtual custom builds just for 1 broadcaster and others being very popular and used by thousands of broadcasters Worldwide.

This manual covers the GS-CU001G MKII which is a popular unit specifically within the UK and builds on the base unit GS-CU001B MKII. It provides extra audio input circuits allowing the 2 commentators to have completely independent audio incoming audio feeds and full size front panel side tone controls.

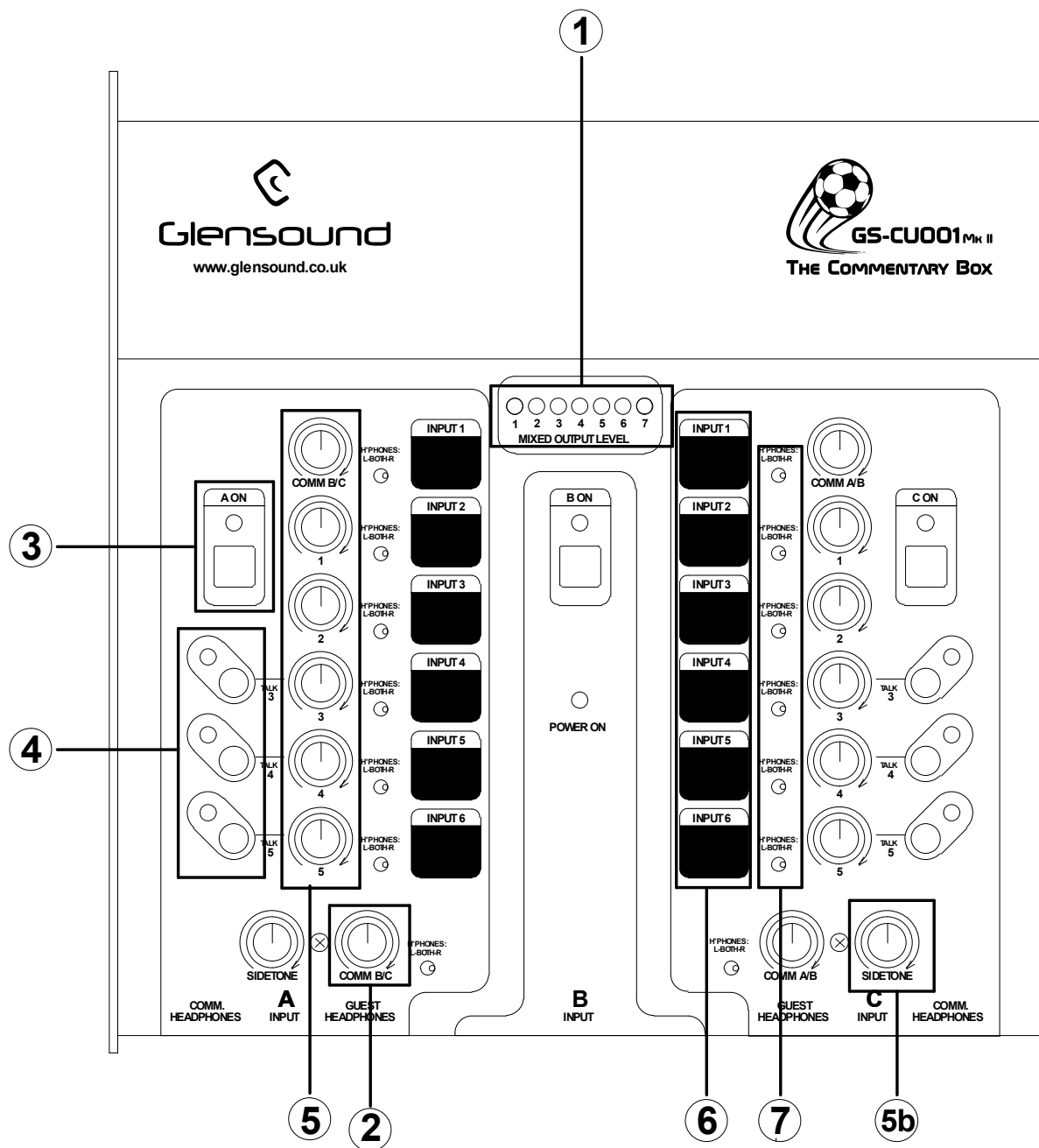
# BLOCK DIAGRAM

## GS-CU001E MKII



# PANEL LAYOUT & FUNCTIONS

## Front Panel



### 1. Seven-segment LED bargraph meter

This has a PPM characteristic and follows the level on the MIXED output. The scale is labelled from PPM1 to 7 with PPM4 equating to 0dBu at the output. Note: since the MIXED output is always fed via the compressor/limiter, unlimited DIRECT outputs may exceed the level displayed on the meter.

## **2. COMM level control** (channels A and C only)

Controls the amount of signal fed from the “other” two channels into the headphone mix.

## **3. ON switches**

The behaviour of these switches alters according to the setting of the rear panel SWITCH MODE selector. In ON/OFF mode, brief actuation of the switches will toggle the corresponding channel on and off. In COUGH mode, the channels remain permanently on except whilst the ON switch is held down, i.e. the switch acts as a mute.

Panel indicators display the status of each channel. When off, a channel feeds no signal to either the DIRECT or MIXED outputs but talkback remains possible.

## **4. Talkback (TB) switches** (channels A and C only) – see also “Switch Options” section below

Pressing any of the three talkback buttons feeds the channel signal to the correspondingly numbered talkback output. The “smart” switches have two modes of operation – brief pushes of the switch toggle in and out of talkback mode (“lazy” talkback), while longer pushes engage talkback only for the period that the switch is depressed (“momentary” talkback).

Panel indicators display the status of each of the three talkback circuits. When talkback is active, the channel feeds no signal to either the DIRECT or MIXED outputs.

Note: In many cases, the three talkback circuits will have a corresponding return talkback signal fed back to three of the SOURCE inputs. The talkback circuits are therefore labelled 3, 4 and 5 in order to provide a loose association with source inputs 3, 4 and 5 under these circumstances. However, the talkback send outputs are entirely independent of the source inputs and may be used in any configuration required.

## **5. SOURCE level controls** (channels A and C only)

Control the amount of signal fed from the correspondingly numbered SOURCE input into the headphone mix.

### **5b. SIDETONE level controls** (channels A and C only)

Control the amount of each commentator’s output signal that is fed into their own headphone mix.

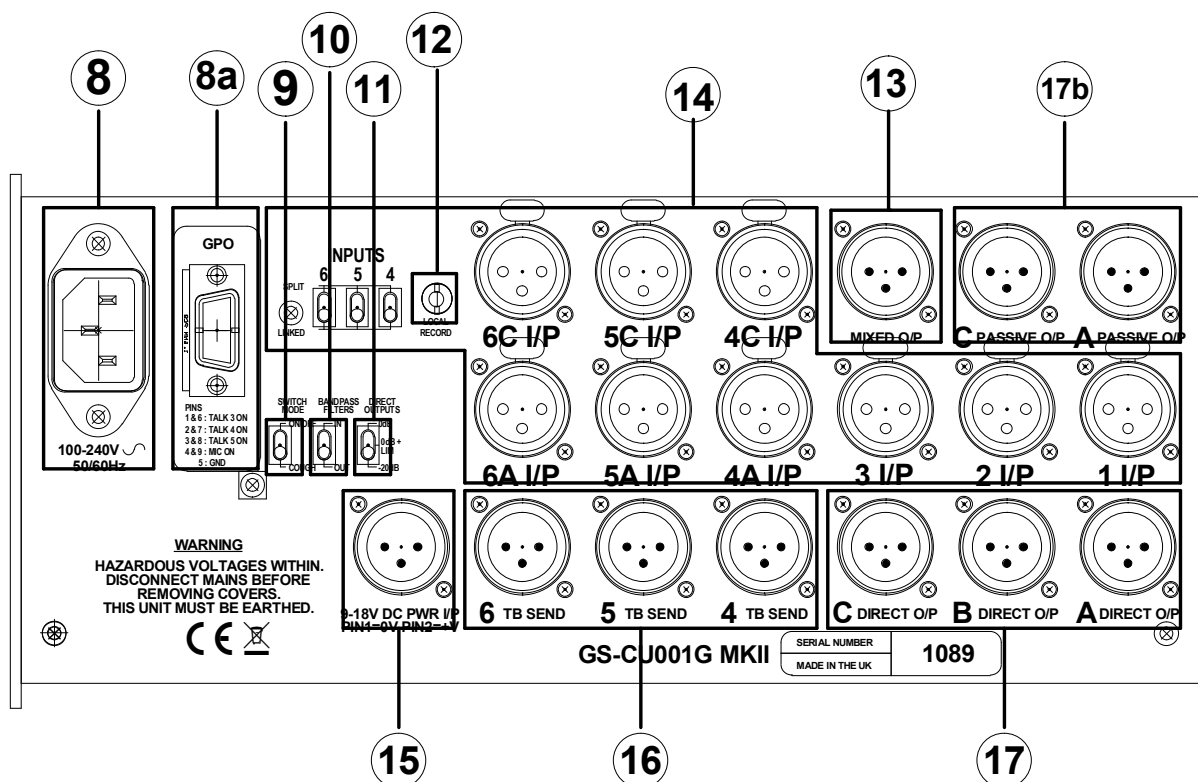
## **6. Labelling areas**

Convenient areas for denoting the purpose of each SOURCE input and/or talkback circuit, using sticky labels, chinagraph pencil etc.

## **7. Headphone routing switches**

Allow each of the sources contributing to the headphone mix to be fed to just the left channel, just the right channel or both channels of the headphones as preferred.

## Rear Panel



### 8. IEC mains input

Accepts worldwide mains voltages without adjustment. Power consumption is less than 10W.

### 8a. GPO Output

There are 4 solid state relays that provide loop closures when either a Microphone is turned on or a talkback button is operated.

The pin out of the D9 connector is printed on the rear panel. When a circuit is active the 2 pins associated with that circuit are joined together.

### 9. SWITCH MODE selector

Allows the operation of the channel ON switches to be chosen as either ON/OFF or COUGH (see above).

### 10. BANDPASS FILTER selector

Allows an optional bandpass filter with -3dB rolloff points of approx. 80Hz and 12.5kHz to be applied to the channel audio signals. Note: the filter is only applied when the channel input is set to MIC or MIC+PHANT.

## **11. DIRECT OUTPUTS level selector**

Allows one of three level options to be selected for the three DIRECT channel outputs:

The 0dB+LIM position feeds the DIRECT outputs from the internal compressor/limiter at a nominal lineup level of 0dBu. With excessive input levels automatically restricted, this is the optimal choice for simpler installations.

The 0dB position feeds the DIRECT outputs with the uncompressed input signal at a nominal lineup level of 0dBu. This option should be selected when peak signal level is to be controlled manually or by offboard equipment.

The -20dB position feeds the DIRECT outputs with the uncompressed input signal at a nominal lineup level of -20dBu. This option delivers maximum headroom in applications where peak signal level is to be controlled manually or by offboard equipment.

## **12. LOCAL RECORD output**

A 3.5mm jack socket – accepting either mono or stereo jack plugs – carrying an unbalanced signal at -14dBu for local recording onto MiniDisk, etc. The signal presented is a combination of the MIXED output (i.e. the overall output of the unit) and the signal being received on SOURCE input 1 (e.g. return cue from studio, etc.).

## **13. MIXED output**

A balanced mono output carrying the combined output of all three audio channels at a nominal lineup level of 0dBu. Signals sent to the MIXED output are always processed by the compressor/limiter. The level at the MIXED output is displayed on the front panel LED meter.

## **14. SOURCE inputs and link switches**

Nine balanced mono inputs. Source inputs contribute to the channel A and C headphone mixes via a front panel level pot and panning switch, and may be used for cue/programme audio, talkback returns, etc.

Sources 1 - 3 have single inputs only and feed the headphone mixes for both channels A and C.

Sources 4-6 each have a pair of inputs and a split/linked selector switch.

With the switch set to SPLIT, the channel A and C headphone mixes are fed from separate inputs labelled: [source number]A and [source number]C respectively.

With the switch set to LINKED, the channel A and C headphone mixes are both fed from the input labelled: [source number]A. (The [source number]C inputs are ignored).



## **15. DC POWER input**

A four-pin male XLR via which the GS-CU001 may be powered from an external DC source lying in the range +9V to +18V. Power consumption is less than 10W. Should both mains and external DC power be applied, power drain will be transferred from the mains to the DC supply once the DC voltage exceeds +12V.

## **16. TB SEND outputs**

Three balanced mono outputs with a nominal lineup level of 0dBu. Channel A and C audio is fed to these outputs when the correspondingly numbered talkback circuit is activated by the front panel buttons.

## **17. DIRECT outputs**

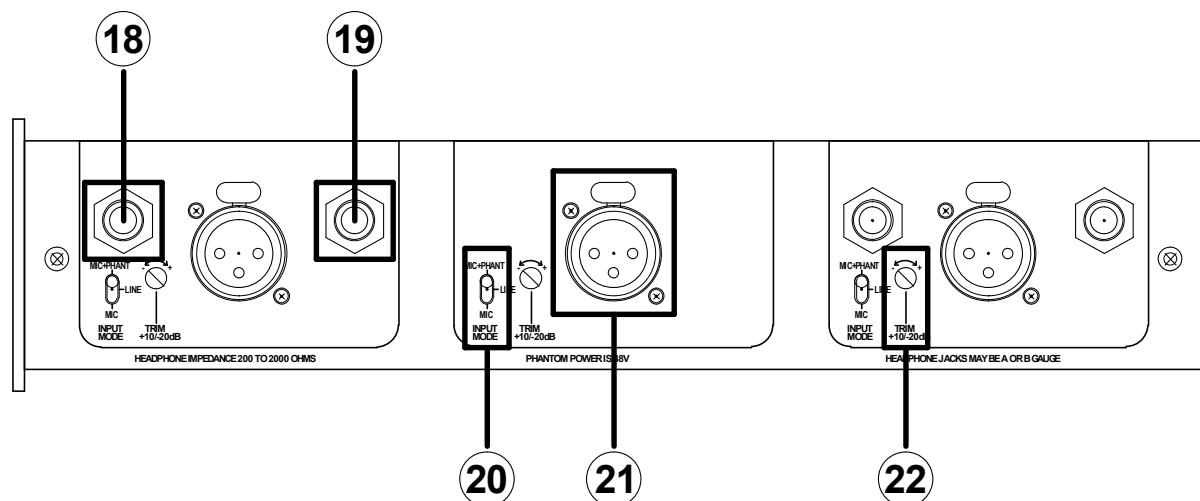
Three balanced mono outputs, the lineup level of which is controlled by the DIRECT OUTPUTS selector (see above). These carry the individual output signals of the three audio channels and can be used when mixing is to be performed by offboard equipment.

### **17b. PASSIVE outputs (channels A and C only)**

Two balanced mono outputs, wired directly to the channel A and C front panel input sockets. These allow the two commentator microphones to be connected to auxiliary equipment which can provide backup amplification.

Note that excessive loading or the connection of unsuitable equipment to the passive outputs may degrade the microphone signals entering the GS-CU001.

## Microphone In/ headphone Out Panel



### **18. COMM HEADPHONES** (channels A and C only)

A stereo 6.35mm jack socket (capable of accepting both A and B gauge jack plugs) carrying the headphone mix. Sources contributing to this mix are SOURCE inputs 1-5, the combined signal from the “other” two channels and own channel sidetone. All these sources, with the exception of sidetone, have a front panel level control and panning switch allowing customisation of the headphone mix.

### **19. GUEST HEADPHONES** (channels A and C only)

Two stereo 6.35mm jack sockets (capable of accepting both A and B gauge jack plugs) carrying a copy of the headphone mixes from channels A and C. A guest being interviewed may be provided with a headphone feed from whichever channel is appropriate.

### **20. INPUT MODE selectors**

Three position recessed switches which determine the sensitivity of the channel audio inputs. In each position the input gain may be trimmed +10/-20dB around its nominal value (see below).

In LINE mode, the input sensitivity suits line level signals.

In MIC mode, the input sensitivity suits non-phantom powered microphones.

In MIC+PHANT mode, the input sensitivity suits phantom powered microphones and +48V phantom power is supplied to the input socket.

### **21. CHANNEL inputs**

Three balanced mono audio inputs feeding the three input channels. Sensitivity is determined by the INPUT MODE selector (see above).

## **22. TRIM controls**

A continuous rotary control allowing the input gain to be trimmed +10dB and -20dB about its nominal value. In LINE mode this may be used to accommodate both consumer and professional levels, while in MIC mode the unit may be adapted (“on-the-fly” if necessary) to different user and microphone characteristics.

## **CONFIGURING MIC ON & TALKBACK SWITCHES**

### **General**

Units with serial numbers greater than 126 are fitted with enhanced firmware that allows the operation of some front panel controls to be altered by the user. This allows the functionality of the unit to be tailored to meet changing requirements and fulfil different tasks.

Changes are made by holding down specific combinations of front panel buttons as *power is applied to the unit*. For safety reasons the unit only responds to change instructions at the moment of power-up and applying the switch combinations at any other time will have no effect other than the usual functions of the switches involved. Combinations of switches other than those detailed below are ignored.

Only one change may be made at a time – to make multiple changes, remove power from the unit after each change then reapply it while holding down the next switch combination required. Apart from the restrictions described, the number of changes is unlimited and they may be applied at any time.

The unit configuration is stored in internal non-volatile memory and retained even when the unit is unpowered.

### **Supported Options**

- Holding both C ON and TALK3-C selects normal operation of the TB switches, whereby brief depressions of the switches toggle talkback on and off and longer presses engage talkback for only as long as the switch is pressed. This is the default mode of operation.
- Holding both C ON and TALK4-C selects momentary-only operation of the TB switches, whereby talkback is only engaged for as long as the switch is pressed.
- Holding both C ON and TALK5-C selects latching-only operation of the TB switches, whereby each depression of the switch, however long or short, toggles talkback from on to off or vice versa.
- Holding both C ON and B ON toggles whether the channel A and C microphone signals are muted when one of their corresponding talkback channels is active. The default mode of operation is for muting to be enabled.

### **Enhanced Options for Serial nos 642 onwards**

A Further firmware revision was made to allow the switch operation of the Talkback and Microphone circuits to be linked together. This firmware is fitted to all versions with a serial no: 642 or higher.

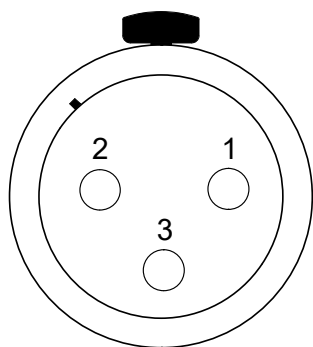
- Holding both A ON and C ON allows the A & C mic switches to be linked.
- Holding both TALK3-A and TALK3-C allows the TALK3 switches to be linked.
- Holding both TALK4-A and TALK4-C allows the TALK4 switches to be linked.
- Holding both TALK5-A and TALK5-C allows the TALK5 switches to be linked.
- Holding both B ON and TALK3-A allows the B ON switch to toggle all the switches between linked switches and normal operation. When in this mode if the B ON switch is on then any pairs of switches that have been set to be linked will operate in the linked mode and if the B ON switch is off then these same switches will operate individually.
- NOTE: The above programming operations 'toggle' between turning the facility on and off.

### **Enhanced Options for Serial nos 980 onwards**

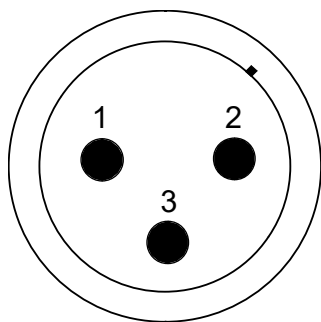
Another firmware revision was released following a customer request to allow the Talkback and Microphone circuits to operate in tandem on each of the 2 main channels. This firmware is fitted to all versions with a serial no of 980 or higher.

- Holding both A ON and B ON allows the mic & talkback switches to be linked.

## WIRING INFORMATION



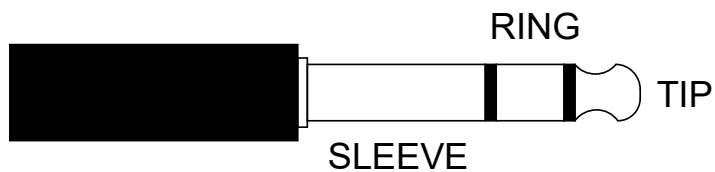
XLR SOCKET (FEMALE)



XLR PLUG (MALE)

### STANDARD XLR AUDIO PINOUTS:

- 1: Ground/ Earth**
- 2: INPHASE/ POSITIVE/ HOT/ MIC +**
- 3: MATE/ NEGATIVE/ COLD/ MIC -**



### STANDARD HEADPHONE WIRING:

- TIP: A/ LEFT Ear**
- RING: B/ RIGHT Ear**
- SLEEVE: Common/ Earth**

### **Local record Output:**

3.5mm stereo jack socket:

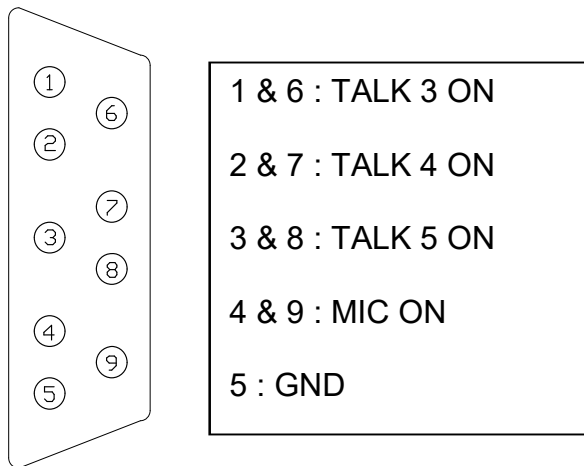
Tip = signal, Ring = signal, Sleeve = GND. Mono plugs may be used without damage.

### **General Purpose Output (GPO):**

9 Pin 'D' Plug (Male)

Loop outputs are all solid state relay derived.

Loops are closed (pins joined together) when associated circuit is on.



**Note: each loop can handle no more than 400V and no more than 100mA**

## **SPECIFICATION**

### **AUDIO**

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**Mic Input Gain Range**

-20dB to +10dB

**Dynamic Mic Line Up**

60dB

**Mic + Phantom Power Line Up**

35dB

**Line Input Line Up**

0dBu

**Input Impedance**

1k5

**Phantom Power**

+48V @ 6mA

**Equivalent Input Noise**

122dBu (22-22kHz RMS terminated 300 Ohms)

**Maximum Input Level**

Dynamic Mic: -20dB

Mic + 48V PH: +5dB

**Band Pass Filter**

Selectable On/Off, when on -3dB points are 80Hz and 12.5kHz (12dB per Octave)

**Frequency Response**

-1dB 40Hz to 16kHz (Filter Off)

**Maximum Output Level**

+20dBu (limiter off)

+9dBu (limiter on)

**Output Impedance**

50 Ohms

**THD + NOISE**

<0.027% @ 10kHz ref +8dBu

**Headphone Source Input Impedance**

>18k

**Maximum Headphone Input**

+26dBu

**Headphone Volume Pot Range**

+10dB to Off (+10dB to -30dB factory fit option)

**Headphone Impedance**

200 - 2000 Ohms

**Maximum Headphone Output**

+19dBu into 600 Ohms

**Headphone Frequency Response**

<= -0.5dB 20Hz to 20kHz

**Headphone Distortion**

<0.016% @ 10kHz ref +8dBu

### **POWER**

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**External Mains PSU**

Filtered IEC, 100 to 240VAC (+/-10%)

47 - 63Hz

**AC Consumption**

<7 Watts

**DC Input**

4 Pin XLR Plug +12V,

**Power On LED**

Bright Blue

### **INCLUDED ITEMS**

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**Handbook**

Physical A4 (download also available)

**Mains Cable**

UK & EU Only, 2 metre mains plug to IEC

### **PHYSICAL**

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**Size**

279 x 286 x 124mm (WxDxH)

**Weight**

V1 = 2.42Kg V3 = 3.48Kg

**Mechanics**

All aluminium construction, anodized and laser etched, powder coated sides

**Shipping Carton**

Rugged export quality cardboard carton  
610 x 420 x 170mm LxDxH

**Shipping Weight**

V1 = 4.2Kg V3 = 5.2Kg