



GlenSound

GS-CU001E 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:

GlenSound Electronics Ltd
1 – 6 Brooks Place
Maidstone
Kent
ME14 1HE
United Kingdom

Telephone: +44 (0) 1622 753662

Fax: +44 (0) 1622 762330

EMAIL ADDRESSES

General enquires: office@glenSound.co.uk

Technical enquires: techinfo@glenSound.co.uk

Sales enquires: sales@glenSound.co.uk

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.



This equipment manufactured by GlenSound Electronics Ltd of Brooks Place Maidstone Kent ME14 1HE is **CE** marked and conforms to:

Low Voltage Directive: EN60065

Emissions: EN55103.1

Immunity: EN55103.2

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

RoHS DIRECTIVE

EC directive 2002/95/EC 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%

GLENSOUND GS-CU001E MKII
Handbook Contents

Issue 1

Description

Page No.

Contents

PRODUCT WARRANTY:.....	4
OVERVIEW	7
VARIANTS COVERED BY THE MANUAL	8
BLOCK DIAGRAM	9
GS-CU001E MKII.....	9
PANEL LAYOUT & FUNCTIONS	10
Front Panel	10
Rear Panel	13
Microphone In/ headphone Out Panel	16
CONFIGURING MIC ON & TALKBACK SWITCHES	18
General	18
Supported Options	18
Enhanced Options for Serial nos 642 onwards	19
Enhanced Options for Serial nos 980 onwards	19
WIRING INFORMATION.....	20
SPECIFICATION.....	22

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.

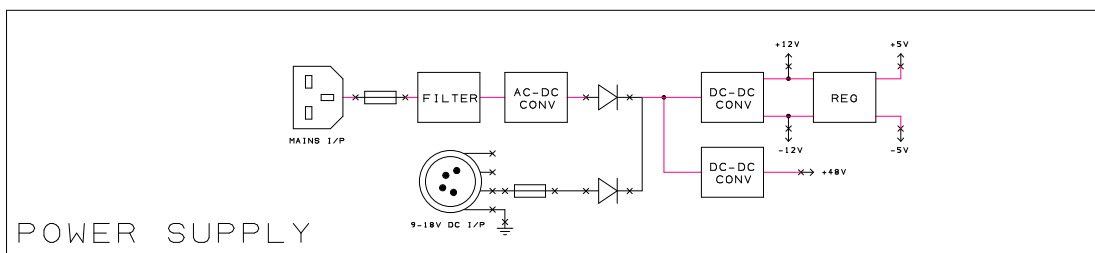
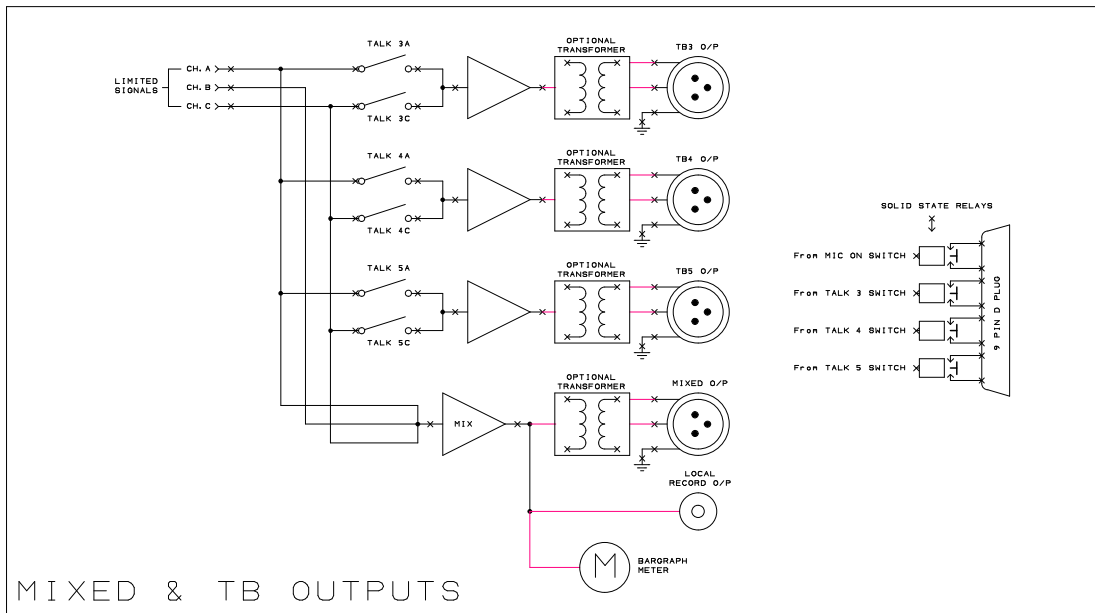
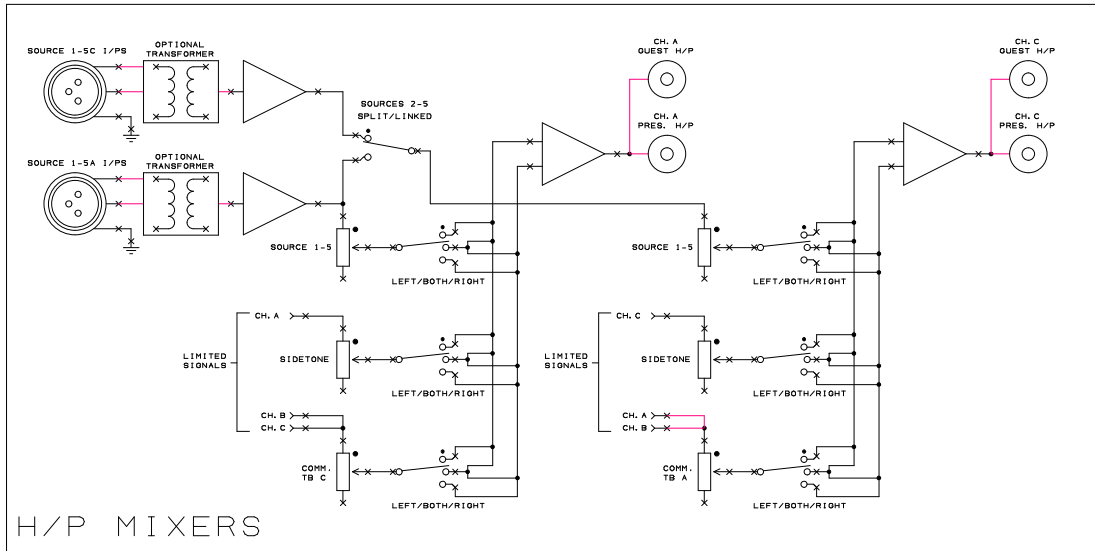
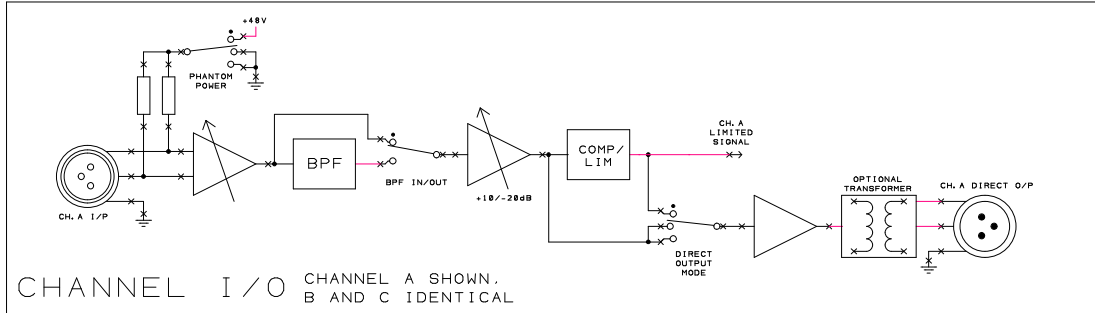
VARIANTS COVERED BY THE MANUAL

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-CU001E MKII which is the second most popular unit in the GS-CU001 MKII range 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 off air talk back between themselves.

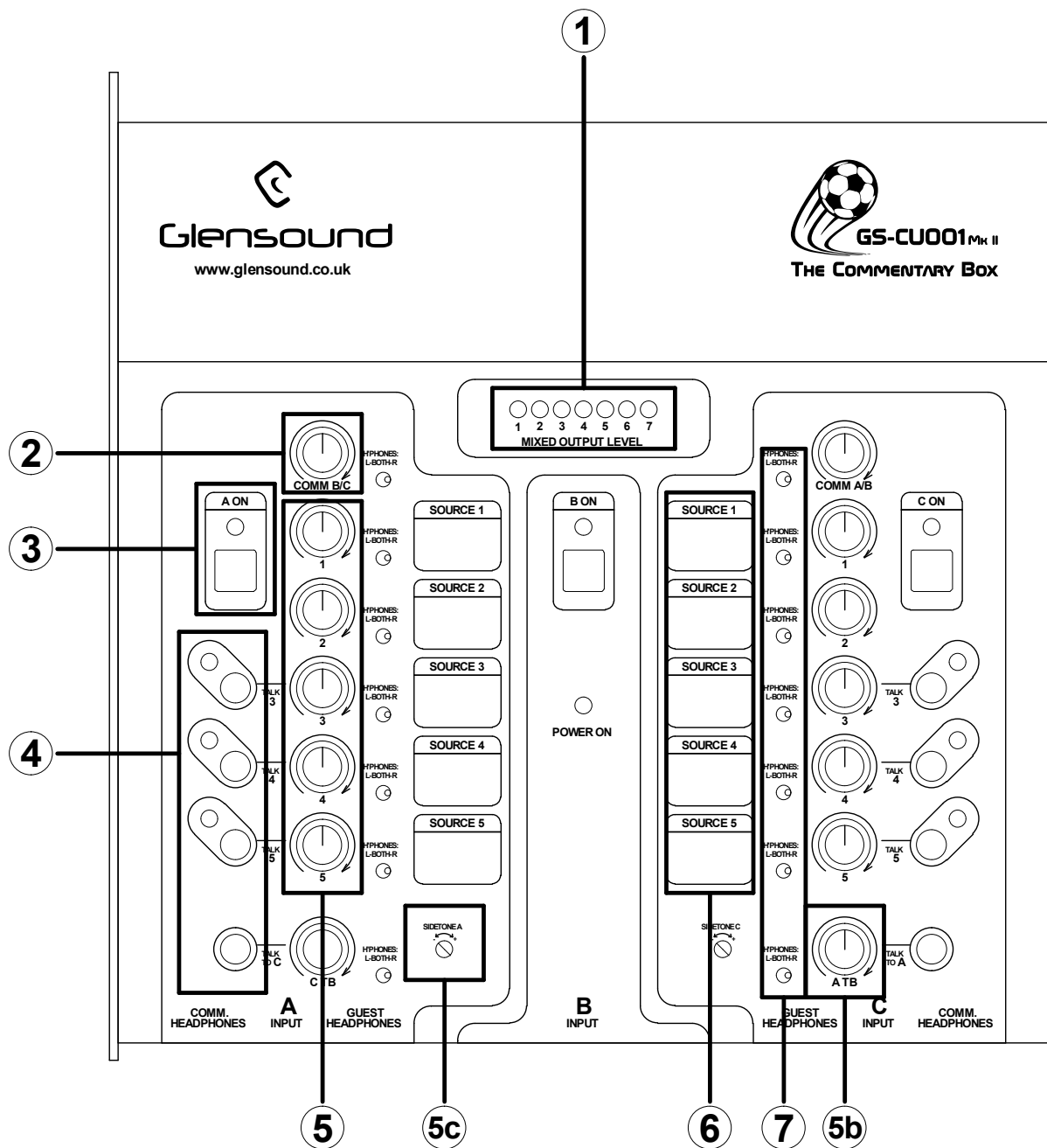
BLOCK DIAGRAM

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. A/C TB level controls (channels A and C only)

Control the amount of internal talkback signal fed from the other commentary channel into the headphone mix.

5c. 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.

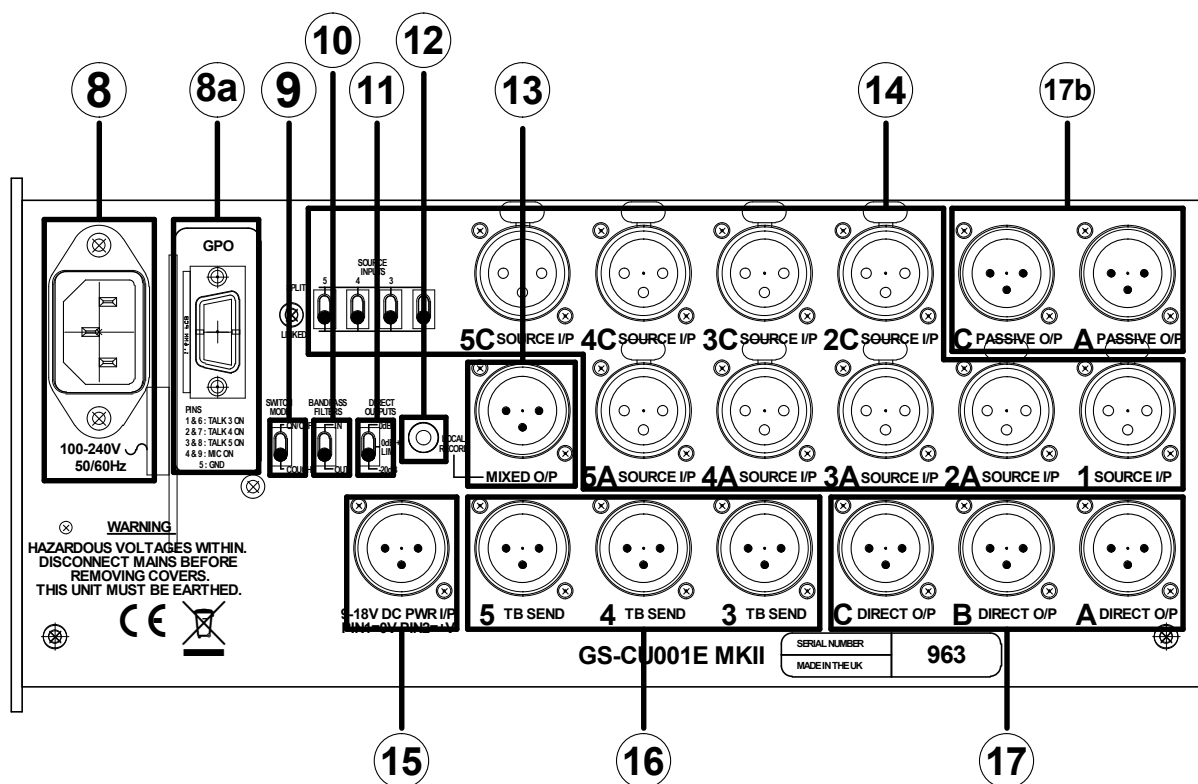
6. Labelling areas

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.

Source 1 has a single input only and feeds the headphone mixes for both channels A and C.

Sources 2-5 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

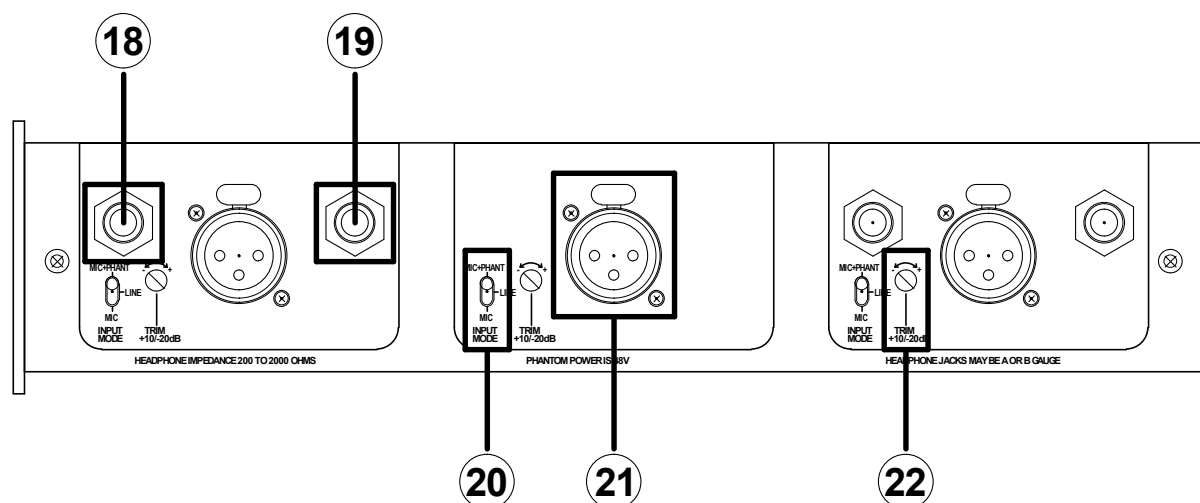
Three balanced mono outputs, the lineup level of which is controlled by the DIRECT OUTPUTS selector (see above). These carry the individual output signals of the three audio channels and can be used when mixing is to be performed by offboard equipment.

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 +/-10dB 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 +12V 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.

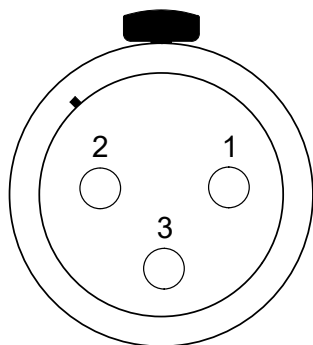
- Holding both A ON and C ON allows the A & C mic switches to be linked.
- Holding both TALK3-A and TALK3-C allows the TALK3 switches to be linked.
- Holding both TALK4-A and TALK4-C allows the TALK4 switches to be linked.
- Holding both TALK5-A and TALK5-C allows the TALK5 switches to be linked.
- Holding 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

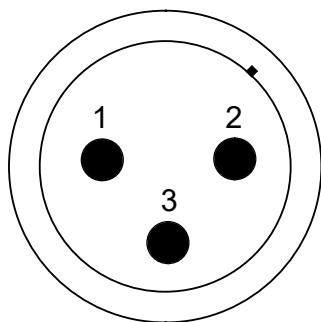
Another firmware revision was released following a customer request to allow the Talkback and Microphone circuits to operate in tandem on each of the 2 main channels. This firmware is fitted to all versions with a serial no of 980 or higher.

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

WIRING INFORMATION



XLR SOCKET (FEMALE)



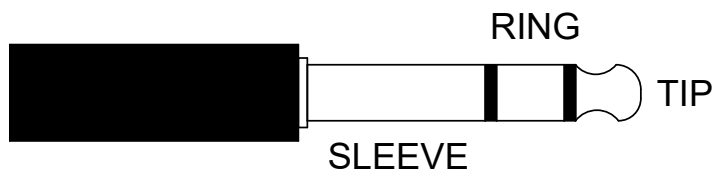
XLR PLUG (MALE)

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:

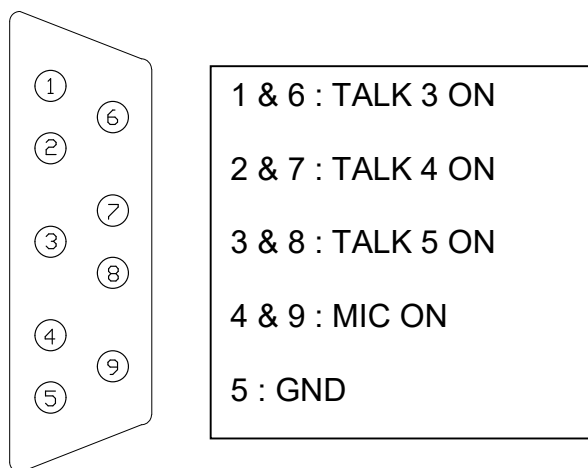
3.5mm stereo jack socket:

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

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

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

Handbook

Physical A4 (download also available)

Mains Cable

UK & EU Only, 2 metre mains plug to IEC

PHYSICAL

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