



GlenSound

**GS-GC5/USB
(also covers features of GS-GC5T/USB)**

USB COMMENTATOR UNIT

PRODUCT DETAILS



Glensound Electronics Ltd

Thank you for choosing a new Glensound product.

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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.

C E

This equipment manufactured by Glen sound Electronics Ltd of Brooks Place Maidstone Kent ME14 1HE is C E marked and conforms to:

Low Voltage Directive: EN60065

Emissions: EN55103.1

Immunity: EN55103.2

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT REGULATIONS 2006 (WEEE)

Glen sound 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%

GS-GC5/USB Commentator Unit

Handbook Contents

Issue 1, April 2014

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OVERVIEW

In this manual, the model referred to is the GS-GC5/USB. Operationally, the GS-GC5/USB is identical to the GS-GC5T/USB, it is the box style that is different. The GS-GC5/USB is a low, flat unit intended to sit with a laptop PC on top. The GS-GC5T/USB is a an upright, squarer unit, with an included stand that is intended to be used with a tablet PC. The layout of controls and connections differs slightly but operationally the two units are identical.

The GS-GC5/USB is a high quality audio interface for broadcasters. It is powered from internal Lithium Ion cells which can be charged from an external power supply (just like a laptop). Internally it is a very high quality and very versatile digital mixer whose parameters can be changed if required to match a users' way of working.

The GS-GC5/USB also includes a licence for Luci Live*. Luci Live is a software IP codec used by broadcasters and is compatible with other common brands of IP codecs. When combined with the GS-GC5/USB, Luci Live is ideal for providing remote on air contribution. *Luci Live is not included as standard with the GS-GC5T/USB, although this can be added if required.

There are 4 audio inputs on the unit, each of which can be switched to accept a Mic or Line level input. These 4 inputs are sent to a twin (stereo) mix bus, and each input can be routed to both or just one channel of this mix bus. This allows the unit to be set up as a stereo device, a mono device, or a dual mono device (for either 2 contributions or a talkback circuit).

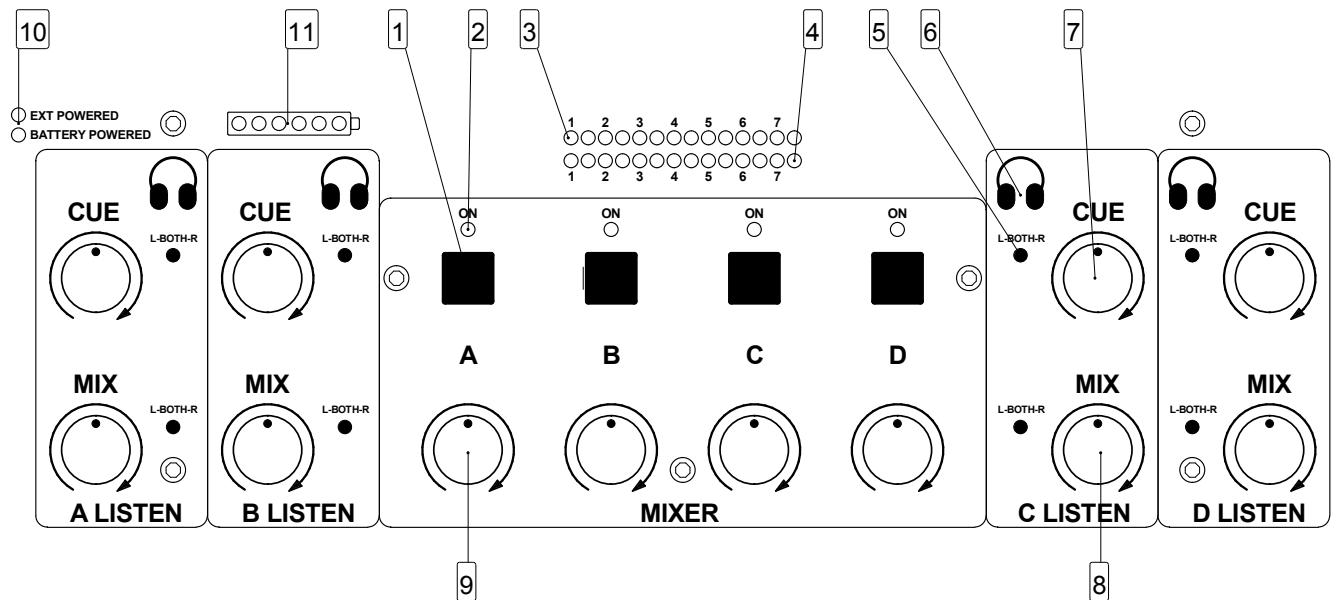
The GS-GC5/USB also has 4 separate headphone mixes. There are 2 outputs for each mix, one suitable for broadcast style high impedance headphones and another for lower impedance earpieces and domestic style headphones.

The GS-GC5/USB can work as a stand alone mixer having 2 local analogue line level outputs (whose sources are configurable), however it's main purpose is to connect audio into and out of laptops, netbooks etc via one of 2 very high quality USB audio interfaces.

To allow reliable connectivity to a Local Area Network (LAN) the device has a built in USB to LAN converter. This is to overcome the the issue of lots of modern laptops only having WiFi network interfaces which generally are unreliable for broadcasters to use a large events.

Front Panel Layout & Functions

PLEASE NOTE AS THE UNIT IS CONFIGURABLE IT IS POSSIBLE TO CHANGE THE OPERATION OF MOST OF THE CONTROLS SHOWN HERE. THEREFORE THE FOLLOWING IS MEANT AS A GUIDE ONLY.



1. Channel On/ Off Switch

Turns a channel on/ off to its associated output mix

2. Channel On/ Off LED Indicator

Indicates when the LED is on that a channel is on and is being sent to its associated output.

3. LED PPM (Top)

Indicates the outgoing level of the left channel of the mixer. For normal use the first red LED should only occasionally illuminate.

4. LED PPM (Bottom)

Indicates the outgoing level of the right channel of the mixer.

5. L-Both-R Routing switch

This switch routes an associated source to either the left only, right only or both outputs of the headphone amplifier.

6. Headphone Source Routing Indication

The 2 LEDs indicate the state of the L-Both-R routing switch. The first time the L-Both-R routing switch is pressed the 2 LEDs will indicate the current state, pressing the L-Both-R routing switch again will toggle the next available routing option for that circuit.

7. Headphone CUE Volume

This level control adjusts the headphone volume level of the audio that is being sent to the CUE circuit.

8. Headphone MIX Volume

This level control adjusts the headphone volume level of the audio that is being sent to the MIX circuit.

9. Channel Gain Control

This level control adjusts the gain of the channels audio input.

10. Power On Indicators

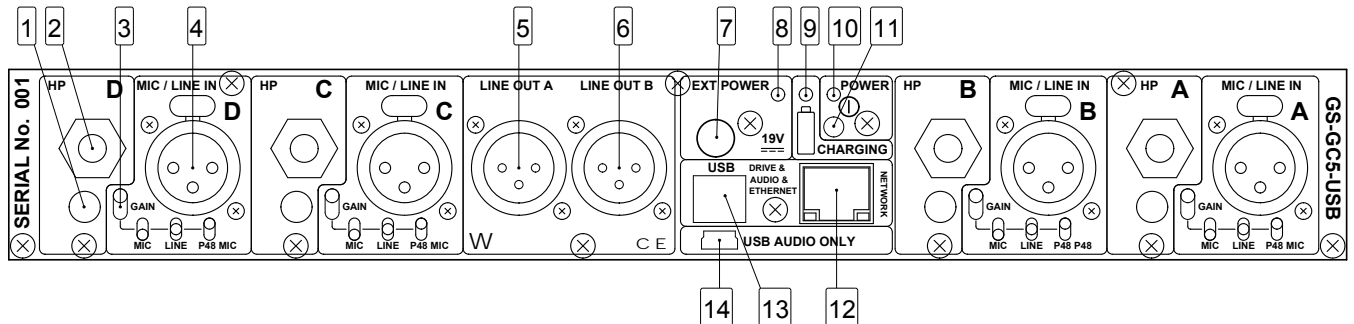
These 2 LEDs indicate that the unit is powered on. Only 1 of the 2 LEDs will be on at any one time. They indicate that the unit is on and from which power source it is currently operating from. If an external power source is present then the unit will always default to this in preference to the internal batteries.

11. Battery Level Indicator

This row of LEDs provide an accurate indication of the state of the internal batteries. Only one LED will indicate at any one time (this is done to save power). The right hand green LED indicates that the internal batteries are fully charged and the left hand red LED is a warning that the batteries are virtually flat and the unit should be connected to an external power supply.

Rear Panel Layout & Functions

PLEASE NOTE AS THE UNIT IS CONFIGURABLE IT IS POSSIBLE TO CHANGE SOME OF THE OPERATION OF SOME OF THE CONNECTORS SHOWN HERE. THEREFORE THE FOLLOWING IS MEANT AS A GUIDE ONLY.



1. 3.5mm Domestic Headphone Jack Socket

Connect low impedance (less than 32 ohms) headphones here

2. 6.35mm Professional Headphone Jack Socket

Connect high impedance (up to 2000 Ohms) headphones here

3. Coarse Gain/ Input Type Selector Switch

This 3 position switch adjusts the input gain, source impedance and turns phantom power on/ off to allow the associated XLR input to accept a full range of signal levels. The graphical representation of the switch positions on the panel show the various states of the switch.

4. XLR balanced audio input

This balanced standard 3 pin XLR audio input socket is the input for a channel of the mixer.

5. XLR Balanced Line Output A

This balanced standard 3 pin XLR audio output plug provides an analogue output of it's associated source.

6. XLR Balanced Line Output B

This balanced standard 3 pin XLR audio output plug provides an analogue output of its associated source.

7. External DC Input

This is a 2 pin barrel type DC input connector. The centre pin is 2.5mm. It is wired centre pin + Volts. It is designed to accept a +19 volt DC input and requires a 2.5 amp power supply. Most standard 19V laptop power supplies should be suitable for this.

8. External Power On LED

This LED will be on if a suitable external DC input is connected to the external DC input. This LED only indicates that a suitable power supply is connected it does not indicate that the GS-GC5USB is turned on.

9. Battery Charging LED

This LED will be on if the internal Lithium Ion batteries are being charged from the external DC power supply. The unit does not need to be turned on to charge the internal batteries.

10. Power On LED

This LED indicates that the unit is on.

11. Power On/ Off Switch

Pushing this switch turns the unit on/ off. To prevent accidental usage during either a broadcast or transit the switch has a long time delay on it and it must be held down for at least 5 seconds before it will either turn the unit on or off.

12. Network Interface For Internal USB to Network Converter

Use this connector for attaching the GS-GC5USB to a network. The unit has an inbuilt USB to Ethernet convertor. This is useful if the PC that is connected to the GS-GC5USB only has a wireless network connection. As a general rule for broadcast purposes it is far more reliable to use a physical wired network than a wireless one.

13. USB Drive & Audio & Ethernet Connector

This is a USB B type connector. This connection provides digital audio to/ from your PC and also simultaneously the data for the USB to Ethernet convertor plus it allows access from the PC to the internal USB drive & hub. This connector should not be used for interfacing to Apple iPads or iPhones.

****NOTE**** This is a high contact connector, meaning that it holds the inserted cable with a lot more force than a normal connector would. This type of connector is fitted to prevent the USB cable being accidentally knocked out during a broadcast, but it does mean that a lot more force is required to remove the USB cable from the GS-GC/USB than may be expected.

14. USB Audio Connector

This is a standard mini USB connector. It provides only a digital audio interface to/from the connected PC. As it provides a USB audio only interface it is possible to use this connection to interface to an Apple iPad or iPhone via a suitable interface cable.

CONNECTING THE GS-GC5/USB TO A PC

1. General

Connect the pc to the GS-GC5/USB using the supplied USB cable. Make sure the PC is on and your operating system is running. Turn the GS-GC5/USB on by pressing and holding the power on switch for at least 5 seconds. Your operating system will find a new device and automatically install the drivers for it.

2. Checking Connectivity

In file explorer navigate to 'This PC'. Two drives should appear 1 called 'Luci' and another called GSGC5-USB. If these appear then the GS-GC5/USB will be connected to your pc correctly.

SETTING UP AUDIO BETWEEN GS-GC5/USB & THE PC

1. USB 1 Drivers

Connecting the unit to the PC as described above will automatically install suitable USB class 1 drivers for interfacing with Windows. Windows should automatically set it's audio I/O to become 'Glensound USB audio 1.0' if it doesn't then search the pc or goto 'Manage Audio devices' or 'Sound' and manually select 'Glensound USB audio 1.0' and set it to default.

2. Software Audio I/O selection.

Most audio software programs will set their audio I/O as per the windows default audio I/O selection. However if you experience problems check that the software that you are using has it's audio I/O set to 'Glensound USB audio 1.0'

ASIO DRIVERS

1. General

USB audio 1.0 drivers are good because they normally just work within windows and no manual driver installation is required. However all audio into and out of your pc will go through windows processing, this adds delay and provides potential pitfalls (such as having the volume turned down within windows). ASIO (Audio Stream Input Output) drivers bypass windows processing and offer a direct link between the software and soundcard (in this case the GS-GC5/USB). ASIO drivers are generally considered to be far better for professional users than USB audio 1.0 drivers.

2. ASIO4ALL

The USB audio chipset that we selected for use in the GS-GC5/USB is suitable for use with a free ASIO driver called asio4all. Just search the web for 'asio4all' and you will find links to the drivers and installation guides.

AUDIO ROUTING CONFIGS

1. General

The GS-GC5/USB has a powerful audio dsp (digital signal processor) at its heart. All the analogue audio inputs and outputs to the unit are converted to digital and are controlled by this dsp. This means routing of the audio internally can be changed to meet your requirements. A number of pre defined audio configs are pre installed on the internal memory and can be selected by a user.

2. Location of Config Files

The audio routing config files are stored on the internal drive. Using file explorer locate the drive called GSGC5-USB, in this drive you will see a number of folders all starting with the name 'Config' followed by a description, for example '*Config Dual Mono Local Cue outs*'. Each of these folders has in it a single text file called 'settings'.

3. Selecting Which Config File To Use

When the GS-GC5/USB first turns on it reads a file called '*Selected config*' which is a text document and can be found using file explorer in the GSGC5-USB drive. This '*Selected config*' text file tells the GS-GC5/USB which config to use.

To change the config simply open the '*Selected config*' text file (we'd use Notepad, but other text editors can be used, however once modified it must continue to be saved as a .txt file), then change the wording of the text file to match exactly the folder name of the config file you want to use, then save the modified file but keep the name '*Selected config*'.

After modifying the file to start using the new config the GS-GC5/USB must be turned off and on again.

4. Default Config

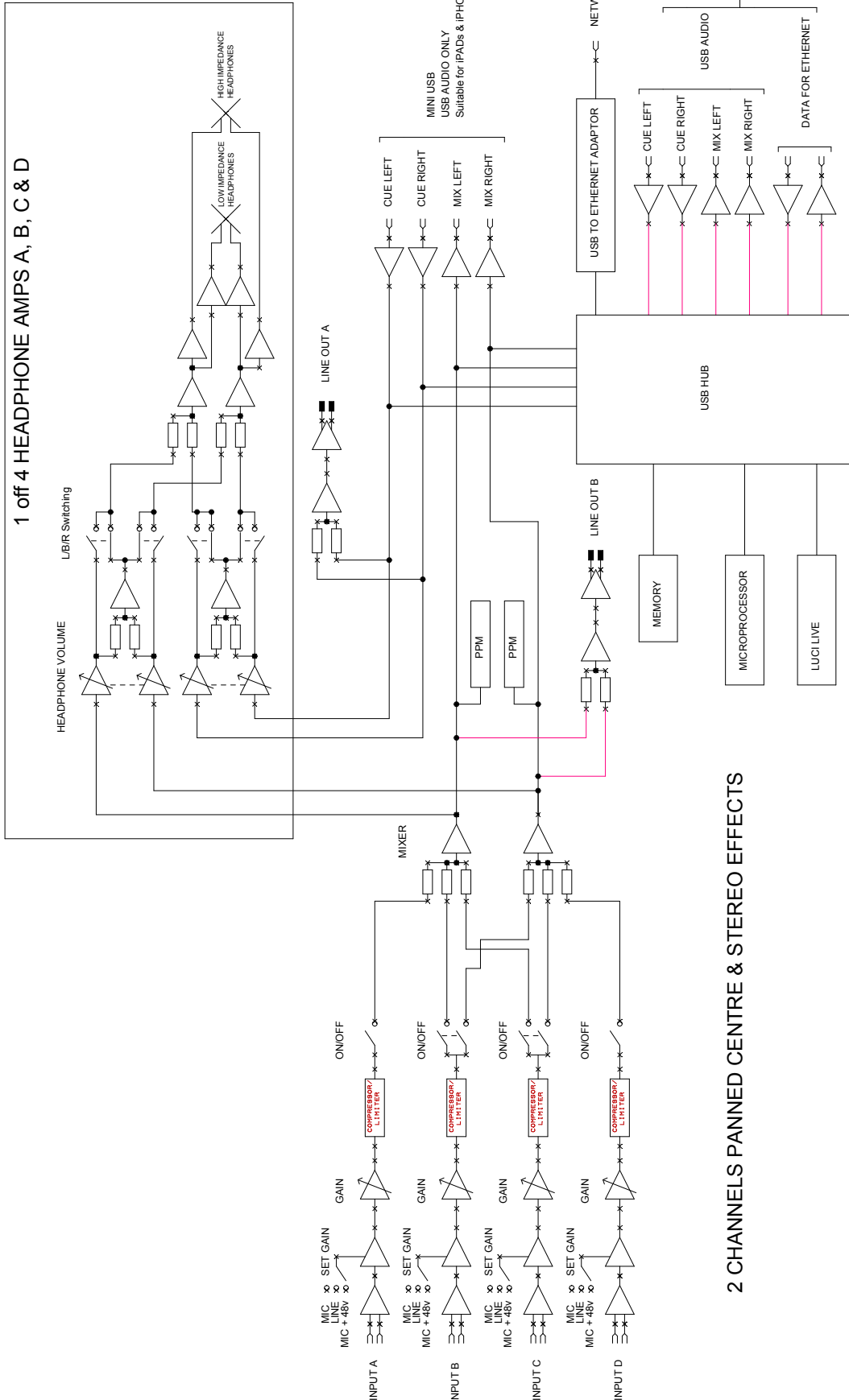
When leaving the factory the GS-GC5/USB '*Selected config*' file will be set to default. The default config is one that cannot be changed and is permanently embedded in the dsp. It's functions are broadly the same as the config called 'Config 4 channels panned centre'. The purpose of the default config file is to allow the GS-GC5/USB to still work even if no Config folders are present.

AUDIO BLOCK DIAGRAMS OF EXISTING CONFIGS

1. General

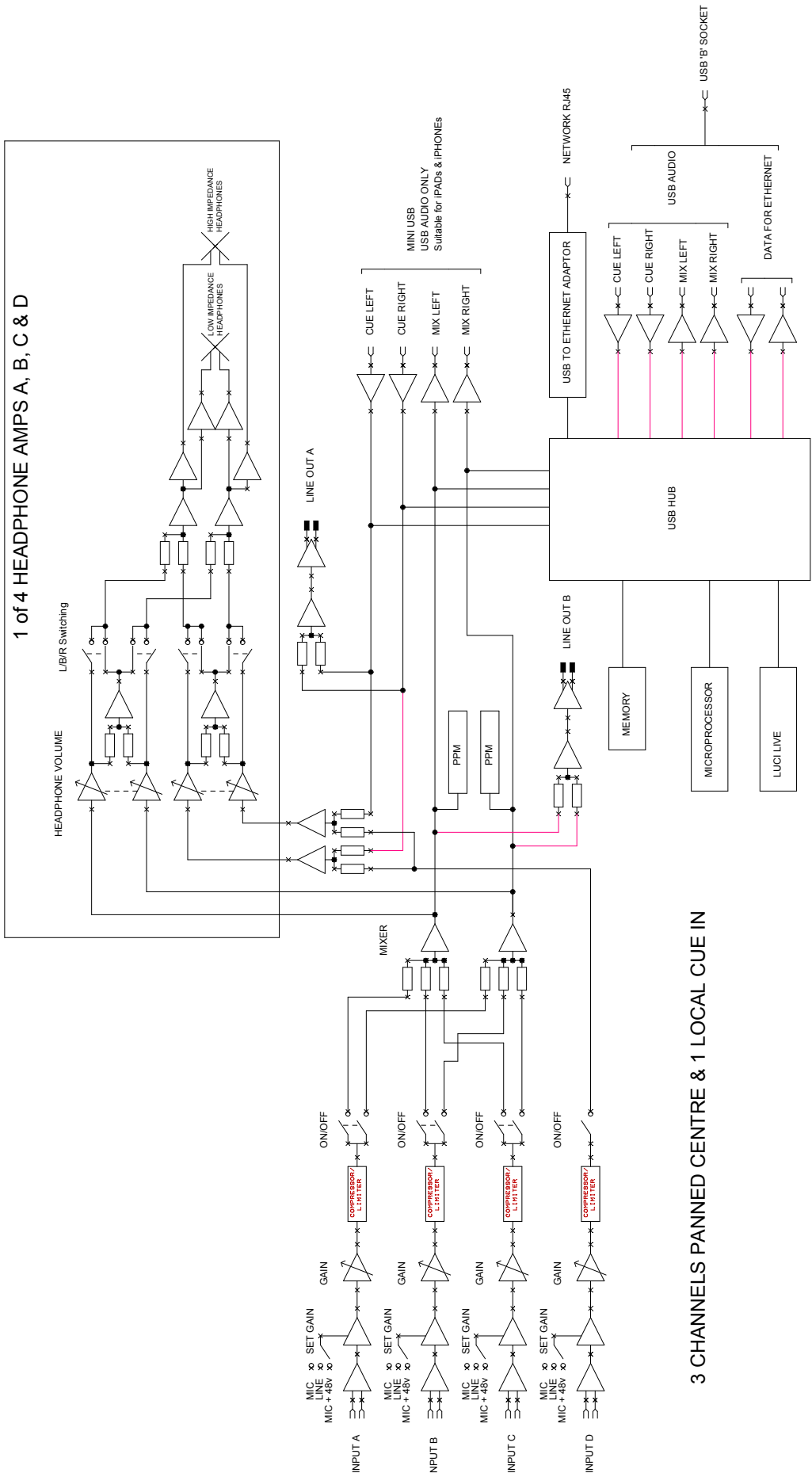
At the time of writing this manual 5 audio configs exist. Detailed below are the block diagrams for these 5 configs along with their folder name. Any new configs that are produced will be published as folders to copy and block diagrams for reference on the GS-GC5/USB page of our web site www.glen sound.co.uk.

****NOTE**** The block diagrams are meant only as analogue representations of the audio flows, they do not actually represent the genuine internal digital architecture.

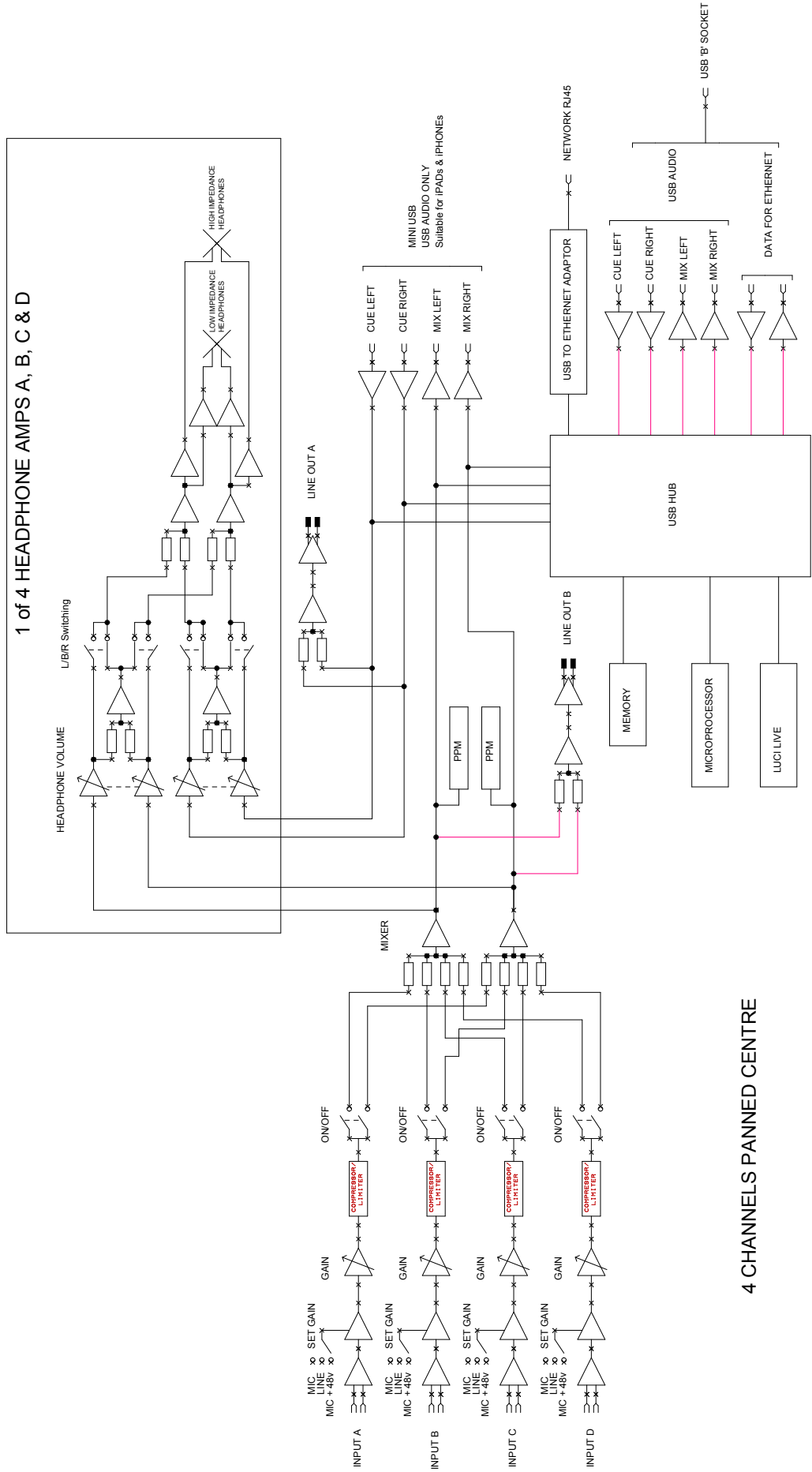


Config 2 channels panned centre & stereo effects

2 CHANNELS PANNED CENTRE & STEREO EFFECTS

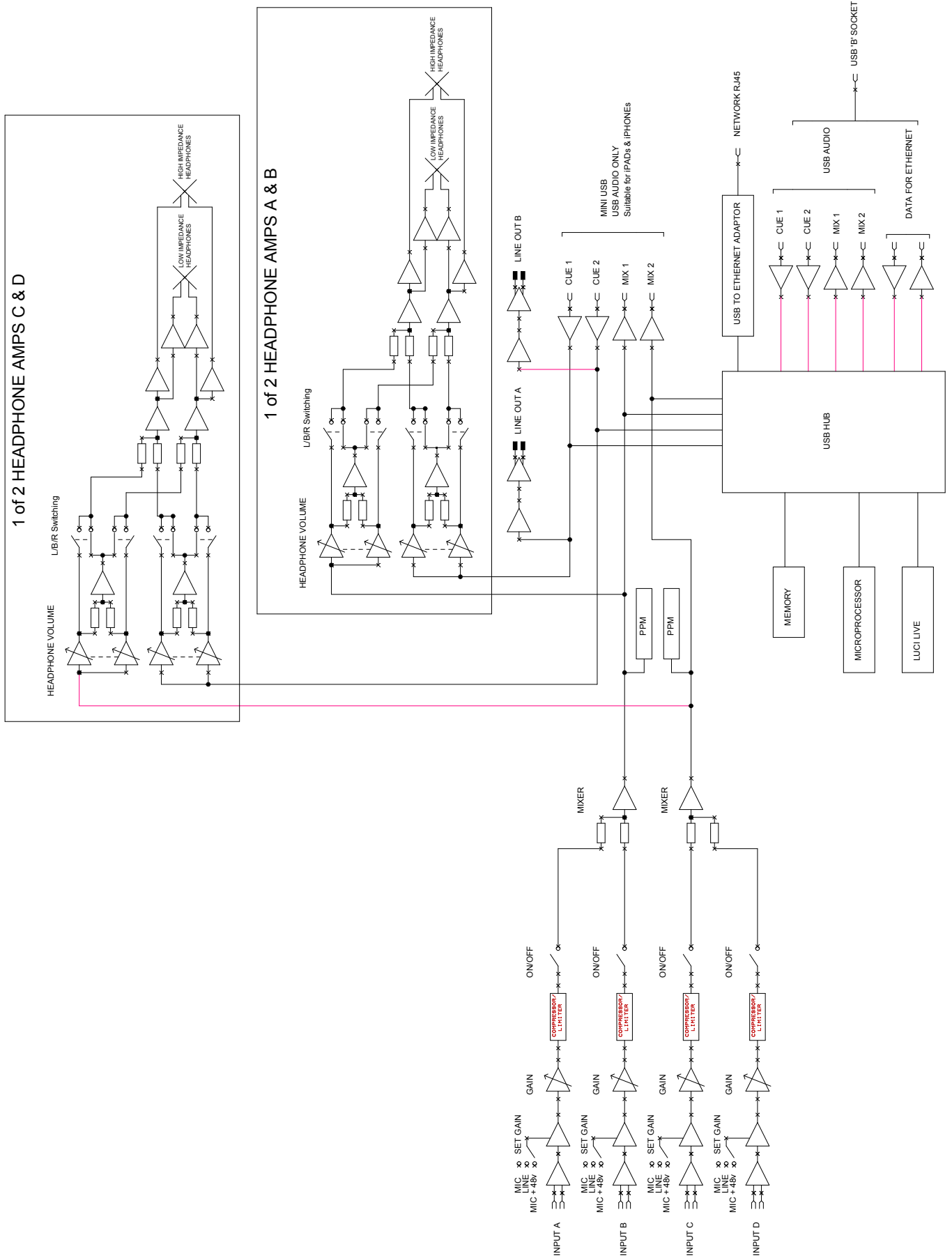


Config 3 channels panned centre & 1 local cue in

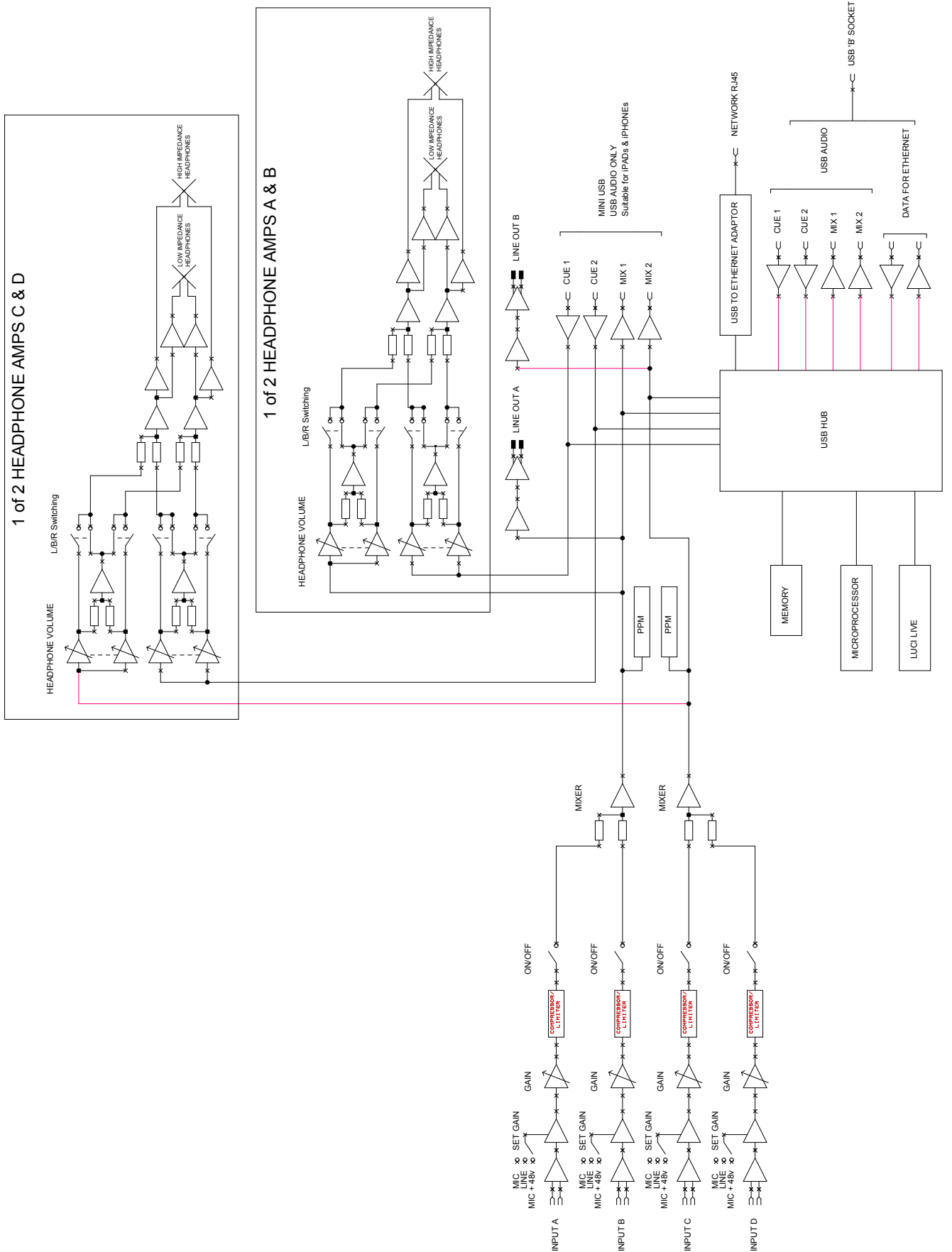


Config 4 channels panned centre

4 CHANNELS PANNED CENTRE



Config Dual Mono Local Cue outs



Config Dual Mono Local Mix outs

LUCI LIVE AUDIO CODEC (not included with GS-GC5T/USB)

1. General

The GS-GC5/USB includes a full Windows/ Mac licence for Luci Live audio codec software and a copy of Luci Live software is embedded within the device. The licence does NOT cover iPhones or iPads, luci live licences for these devices must be purchased through the relevant app store.

2. Other Software

Don't forget that although the GS-GC5/USB includes a Luci Live licence the device itself is a very high quality broadcast sound card and many other software packages can be used with it.

3. Locating & Running Luci Live Software

Once the GS-GC5/USB is connected to your pc and turned on, using your file explorer locate the folder called 'Luci' then open either the Windows or OSX folder, if using windows once the Luci Windows folder has been opened look for the application called 'LuciLive'.

Double click on the LuciLive application to open it.

USING LUCI LIVE

1. General

LuciLive software was not written by Glensound. It was an existing software application that was suggested by a very large customer of ours that we should include within the GS-GC5/USB. Support for the LuciLive program should be directed to:

Email support


- iPhone: iphone@luci.eu
- Windows PC: windows@luci.eu
- MAC: mac@luci.eu
- Android: android@luci.eu
- General questions: support@luci.eu

Telephone support

+31 (0) 43 321 9499

The following very basic guide will help you to get started, a much better guide can be found on the support page of the Luci website (www.luci.eu). At the time of writing the best guide on Luci's website was called '*Luci Live Extended Manual incl. Workflow for iOS. All settings incl. extended explanations how to setup new stations and or add an existing station list*'.....The title of the guide indicates that it is for iOS not windows but the interface is so similar it is worth a read.

2. Basic Screen Shot



The screenshot shows the Luci Live software interface. At the top, a window title bar reads "Luci Live". Below it is a menu bar with "File" and "Tools". The main display area shows "Glensound Office" and two buttons: "Record to... press me" and "Play from... press me". Below these is a level meter with "OUT" and "IN" labels and a scale from -50 to 0. The interface features several control buttons: a circular button with a microphone icon, a play button, a microphone icon with a slash, and a button with a crossed-out microphone icon. Two vertical volume faders are positioned below the buttons. At the bottom, there are icons for headphones and a microphone. A central "LUCI" logo with a Wi-Fi symbol is also present.

Record & Play buttons turning play button on can turn mic off!

Name of the Station you are connecting to

Connect to Station, this antenna sign must be turned on (RED) to send/ receive audio

Volume Faders. Set both to the middle as per this picture. Level adjustmenst should be done on the GS-GC5/USB

Mic On, this must be turned on (RED) to send audio

Pressing these icons can mute headphones or mic. If they have a line through them they are muted and you will not hear/ send audio.

3. Setup Audio I/O To Luci

With LuciLive open and running select the Tools tab and select 'Select audio I/O...'. A new window will open and assuming you're not using the ASIO driver make sure that you select the Input to 'Glensound Audio 1.0 Input (Glensound USB...)' and make sure the output is set to 'Speakers (Glensound USB Audio 1.0)', then press OK.

4. How To Add A Station To Connect To

With LuciLive open and running select the Tools tab and select 'Select a station...'. A new window will open, press the + button. (Note you cannot press the + button or the Edit button if the connect to station antenna button is on.)

Once the + button has been pressed another new window will open called 'Add a station' this will look like:

The screenshot shows the 'Add a station' dialog box with the following settings:

- name: (empty text field)
- protocol: RTP
- destination: 81.86.64.69:5010
- format: AAC-HEv2 (with Stereo checked)
- sample rate: 48000
- bitrate: 64000 (frames: 1 Rb=72832 p/s=23)
- jitter buffer(ms): 200

The name that you want to call the station goes here

The protocol is how you connect to the studio.

Destination is an IP address & port number or web address of the station you are connecting to

Format is the codec that is used for the connection

This sets the rate at which the audio is sent between Luci Live and the GS-GC5. 44100 is CD quality and 48000 is broadcast quality

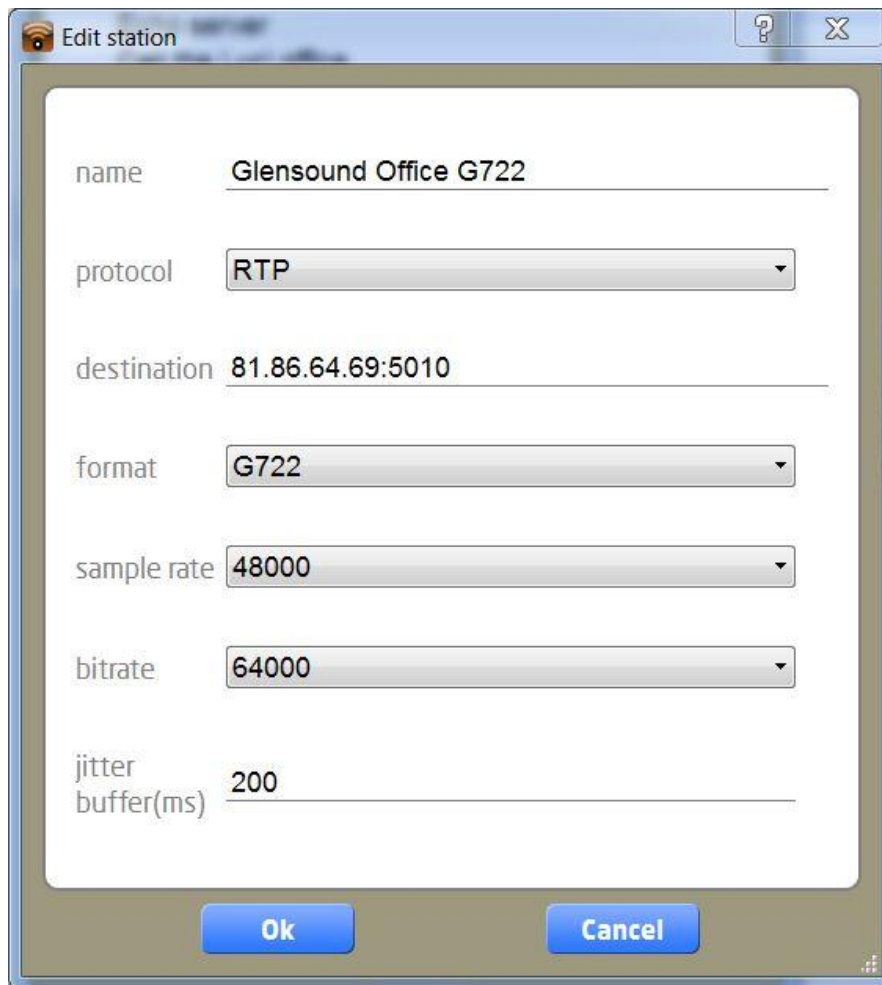
This sets the speed that data is sent to the internet connection. The faster the bitrate the better, however lots of internet connections are not fast enough and smaller bitrates must be used.

100 milliseconds (ms) is standard. Setting to a bigger number will increase the delay in the audio between you and the station but will hugely decrease the amount of audio drop outs that you will get.

DON'T WORRY ABOUT THESE SETTINGS THE STATION ENGINEER THAT YOU ARE CONNECTING TO WILL PROVIDE YOU THE INFORMATION THAT YOU NEED.

5. How To Setup A G722 Call To Glensound Office (For Test)

Add a station as detailed above and use the settings as shown in this picture:



The image shows a screenshot of a software window titled "Edit station". The window contains several configuration fields:

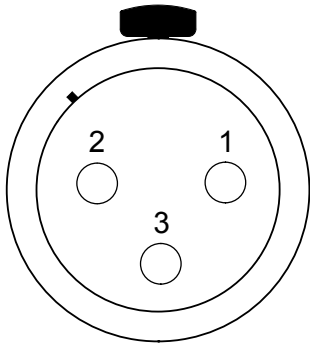
- name:** Glensound Office G722
- protocol:** RTP
- destination:** 81.86.64.69:5010
- format:** G722
- sample rate:** 48000
- bitrate:** 64000
- jitter buffer(ms):** 200

At the bottom of the window, there are two buttons: "Ok" and "Cancel".

Then press OK. You should then be back at the select a station window. Make sure the Glensound Office G722 name is highlighted and press done.

Now all you need to do to make the connection to the Glensound Office is to press the connect to station antenna button and make sure it goes red, then press the microphone button and make sure it goes red, now you should have a LuciLive connection to the Glensound Office.

WIRING INFORMATION



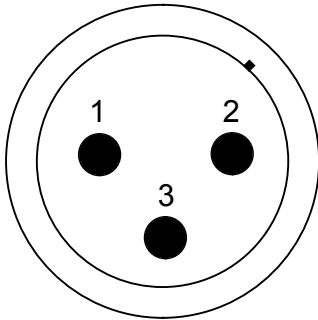
XLR SOCKET (FEMALE)

STANDARD XLR AUDIO PINOUTS:

1: Ground/ Earth

2: INPHASE/ POSITIVE/ MIC +

3: MATE/ NEGATIVE/ MIC -



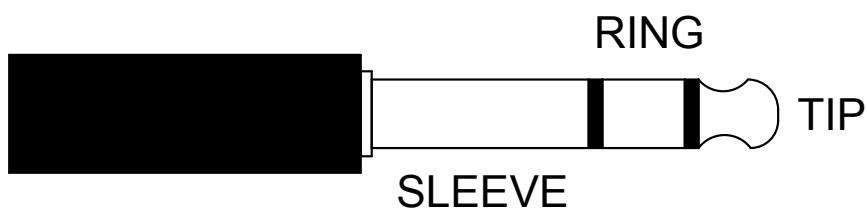
XLR PLUG (MALE)

STANDARD HEADPHONE WIRING:

TIP: A/ LEFT Ear

RING: B/ RIGHT Ear

SLEEVE: Common/ Earth



GS-GC5/USB External DC power input: 2.5mm Barrel, Centre +Ve