



**GLENSOUND
ELECTRONICS LTD**

GS-TALENT



DIGITAL COMMENTATOR UNIT

PRODUCT DETAILS



GlenSound Electronics Ltd

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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.



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Low Voltage Directive: EN60065

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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-TALENT Commentator Unit

Handbook Contents

Issue 1, February 2013

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GS-TALENT Panel Features – refer to numbered diagrams

1. 2 Line LCD Display

Provides visual indication of current system settings and a menu system for use during setup (see SETUP for more details)

2. Select Switch

When in setup mode the select switch toggles through the available menus

3. Set Switch

When in setup mode the set switch sets a characteristic of a menu option.

If the talent box is not in setup mode then pressing the set switch will display the units IP address.

4. Done Switch

Used for exiting setup and also finishing the voice recording of an ident.

5. Seven-segment LED bargraph meter

This has a PPM characteristic and either follows the level on the MIXED output or the Source 1 input (see SETUP for more details). The scale is labelled from PPM1 to 7 with PPM4 equating to 0dBu at the output. Note: since the MIXED output can be fed via the compressor/limiter, unlimited DIRECT outputs may exceed the level displayed on the meter.

6. S'TONE (Sidetone)

Controls the amount of signal fed from the channels own input to the headphone mix.

7. COMM level control

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

8. Source level controls

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

Note. Source 1 pot can be setup to have a stereo source fed to it by using both the source 1 and source 2 input circuits. If it is setup as a stereo source then the Source 2 pot does nothing (see SETUP for more details).

9. B headphone volume and source selection

The pot controls the overall headphone volume for 'B' commentator. The B commentators headphone mix can be either a copy of the A mix or the C mix, which is selected is indicated by the LEDs above the pot. If BOTH LEDs are on then this means that a Talent Remote is connected for commentator B and the headphone mix will be as setup on the remote box.

10. Labeling areas

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

11. 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, both or neither channels of the headphones as preferred. The first time the button is pressed the L/R LED indicators show the current routing state.

12. Talkback (TB) switches (channels A and C only) – (see SETUP for more details)

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. By default when the talkback is active, the channel feeds no signal to either the DIRECT or MIXED outputs, however this can be changed (see SETUP 22. Mute On TB)

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.

13. ON switches

The behaviour of these switches alters according to the SETUP menu configuration. 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.

14. Remote LED indication

If the LED is on it indicates that a REMOTE box is connected to that channel and the headphone mix and mic routing functions will be being performed by the remote box and not the main unit.

15. Incoming TB LEDs

If incoming audio on source 3, 4 or 5 is detected then the associated LED will illuminate.

16. Source Inputs

5 balanced mono audio inputs. Each input contributes to the headphone mix. Source 1 & 2 can be linked together to generate a stereo audio circuit (see SETUP for more details).

17. Unit Link Connectors

These are used for sharing audio sources, talkback outputs & main mix output between multiple Talent Boxes. Although the links are made with CAT5 cables sophisticated current mixing technology means that the link cables can be up to 100 meters.

If a link cable is connected between 2 Talent boxes then it is important that both Talent boxes are turned on. The RJ45's are marked as SEND & RECEIVE, if just 2 Talent Boxes are to be linked then only 3 RJ45 cables are required for full link facilities.

18. IDENT Switch

Pulling this switch upwards puts the units internal ident recorder into record mode, where it records audio being inserted into the 'A' commentators input. Once the A input ident message is completed then the 'Done' switch on the front panel should be pressed, this tells the ident recorder to add 1k tone to the end of the message. Putting the switch to the play position turns the ident on to the outputs that have been selected during setup (see SETUP for more details).

19. SETUP Switch

Pulling this switch up and holding it up for a few seconds puts the Talent Box into setup mode. Once in setup mode the display will show a different screen and allow the user to set different options.

20. MIXED OUTPUTS

2 audio outputs of the mix of the 3 commentators inputs. Each output is fed from its own electronic driver circuits. If the UNIT LINK facility is used and the SEND 3/ RECEIVE 3 circuit connected then the mix output will be all commentators across all the linked Talent Boxes.

21. IEC mains input

Accepts worldwide mains voltages without adjustment. Power consumption is less than 20W. There is an internal slow blow 1A HRC fuse.

22. DC POWER input

A four-pin male XLR via which the Talent box may be powered from an external DC source lying in the range +9V to +18V. Power consumption is less than 20W. 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.

23. REMOTE Box Links

Standard USB A cables are used to supply data and power between the Talent Box and a Talent Remote Box. No audio is supplied over this link. Special locking USB sockets are used that require the top latch to be pushed in to remove the cable.

Once a Talent Remote Box is connected all the headphone routing/ levels & mic routing functions for that channel are controlled by the remote box and not the main talent box.

24. NETWORK

The Talent box includes a basic internal web server which allows the gains of each of the microphone inputs to be remote controlled via a web page. The Network RJ45 connector needs to be connected to the same network as the pc that will display the web page. It is not possible to use a fixed IP address on the Talent box, a DHCP server must be present on the network that it is connected to to provide it with a dynamic IP address.

Once connected to the network the IP address of the Talent Box can be seen by pressing and holding the 'SET' button (assuming the unit is not in setup mode). Note: it can take up to 60 seconds after connecting to a network before the IP address can be displayed on the LCD.

25. GPIO D Connector

The 9 way D connector provides access to 6 general purpose input output (GPIO) circuits. The wiring for these circuits is printed on the rear panel by the connector. There are 3 TB active outputs, these indicate when one of the 3 TB buttons has been pressed. There are also 3 dual-purpose circuits which can be set to be either an input or an output (see SETUP for more details). If set as outputs these 3 circuits indicate when a MIC ON switch has been pressed, if set as inputs they allow remote control to turn on/off the MIC ON switches.

26. Local Record

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.).

27. TB SEND & DIRECT Outputs

The TB sends are 3 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, channel B audio can be fed to these outputs if a Remote Box is in use. The output level can be adjusted (see SETUP for more details).

The Direct outputs are 3 balanced mono outputs, the lineup level of which can be adjusted during setup. These carry the individual output signals of the three audio channels and can be used when mixing is to be performed by off board equipment.

28. PHANT (Phantom Power)

Pushing the phant button toggles the phantom power on/ off. A LED indicates when it is on. The phantom power is 48 volts. Because phantom powered microphones have a higher output level than dynamic turning the phantom power on also reduces the input gain.

29. 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. If the web page remote control is used for setting the mic gains then these front panel controls do nothing even if the web page is disconnected until the internal microprocessor is rebooted (by entering/exiting setup mode). This is done deliberately to prevent sudden jumps in the output level if a web page is accidentally closed.

30. COMM Headphones

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 have a front panel level control and panning switch allowing customisation of the headphone mix.

31. MODE (Mic/Line switch)

Pressing the mode switch alternates the input gain between MIC and LINE. A LED indicates the current setting. There is an option to prevent the MODE switch operating (see setup 24 Input Lock).

32. AUX In

This 3.5mm stereo jack socket allows domestic level equipment to be connected to the B input. If the AUX in is used and the inputs mode is set to Line then the nominal input level is -10dB, if the mode is set to Mic then the nominal input level is reduced to -22dB.

33. CHANNEL inputs

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

GS-Talent SETUP

ENTERING SETUP

To enter setup the rear panel SETUP switch must be pulled upwards for a few seconds. Once in setup mode the LCD will show the 1st setup option.

SELECTING FEATURES TO BE SET

Once in setup mode pressing the 'SELECT' switch toggles through the available different features that can be altered.

CHANGING OPTIONS OF A FEATURE

Once the select button has been used to find the feature that is required to be altered then pressing the SET button will toggle through any available options for that feature. If you wish to alter more than 1 feature at once then just toggle to the next one to be changed, always complete changes with 'Done'

SETUP OPTIONS Highlighted = Factory Default

1. DIR Limiter

This affects the direct outputs only. (The mixed output is always limited)

Available options are:

'Disabled'i.e. the direct outputs are not limited

'Enabled'the direct outputs are limited



If enabled after leaving setup the display will show this icon

2. BP Filter

This affects all the outputs.

Available options are:

'Disabled'the Band Pass filter is not on and the frequency response is flat

'Enabled'the Band Pass filter is on and the frequency response is tailored to reduce unwanted Low Frequency and High Frequency signals.



If enabled after leaving setup the display will show this icon

3. ON Switch Mode

This affects the operation of the channel ON buttons.

Available options are:

'Normal'The channel on switches toggle between on/off each time the switch is pressed

'Cough'The channel is always on and while the switch is held down it's output is muted.

4. TB Switch Mode

This affects the operation of the talkback switches.

Available options are:

'Automatic'....The switches operate as intelligent lever keys, i.e. a quick tap will toggle the switch on/off or a long hold will just momentarily turn the output on.

'Momentary'....The switches are always off and only turn on while being held down.

'Latching'....Each press of the switch toggles its output between on & off.

5. DIR O/P Level

This affects the nominal line up of the Direct outputs

Available options are:

'0dB'....Normal output level

'-10dB'....Provides extra headroom but external make up gain may be required

'-20dB'....No more headroom than -10dB but a lower output level to provide more external control if required.

6. TB O/P Level

This affects the output level of the Talkback send circuits.

Available options are:

'0dB'

'+6dB'

'+12dB'

7. GPIO Mode

This affects the operation of the 3 Channel on switch General Purpose Inputs or Outputs.

Available options are:

'ON/OFF=Inputs'....This sets the circuits to be Inputs, i.e. an external connection could remotely turn a channel on/off

'ON/OFF=Outputs'....This sets the circuits to be Outputs, i.e. an external indication can be provided to show the status of the channel on/off button.

8. Ident > DIR

This affects the routing of the internal Ident recorder when in play mode to the Direct outputs

Available options are:

'Disabled'....If the ident is set to play it will not be sent to the direct outputs

'Enabled'....If the ident is set to play it is routed to the direct outputs

9. Ident > MIX

This affects the routing of the internal Ident recorder when in play mode to the mixed outputs

Available options are:

'Disabled'....If the ident is set to play it will not be sent to the mixed outputs

'Enabled'....If the ident is set to play it is routed to the mixed outputs

10. Ident > TBs

This affects the routing of the internal Ident recorder when in play mode to the talkback send outputs

Available options are:

'Disabled'....If the ident is set to play it will not be sent to the talkback send outputs

'Enabled'....If the ident is set to play it is routed to the talkback send outputs

11. Stereo Link

This links source input 1 and source input 2 to become a single stereo source controlled by a single front panel pot.

Available options are:

'Disabled'...Source 1 & 2 inputs are mono and are routed to their own front panel level controls.

'Enabled'...Source 1 & 2 are linked to be stereo. The source 2 level control will do nothing and the source 1 level control will act as a stereo level control.



If enabled after leaving setup the display will show this icon

12. Meter Source

This changes the source of the audio being displayed on the 7 LED PPM meter

Available options are:

'Output Mix'...The meter will display the internal mix output level

'Input Source 1'...The meter displays the audio that is received on source 1, useful if the direct outputs are being used and a mixed programme is generated externally.



The small arrow points to the meter below, MX indicates that the meter is displaying the Output Mix



The small arrow points to the meter below, S1 indicates that the meter is displaying the input of Source 1

13. Through to 19. StopR: xxxxxx

Features 13 through to 19 all deal with 'end stop resistors' on the headphone level circuits. An end stop resistor means that the headphone level cannot be fully attenuated; this is useful if say perhaps you want the Directors voice to always be heard by the commentators even if the commentator tries to turn the associated headphone source off. If enabled the minimum level is -20dB.

Available options are:

'Disabled'....The headphone level can be fully attenuated

'Enabled'....The headphone level cannot be fully attenuated

20. Limiter Mode:

This allows different compressor/limiter characteristics to be set. See technical details for further information.

Available options are:

Normal....A replica of the classic Glensound compressor/limiter circuits featured on all our commentary units.

Soft....The limiter knee is slightly below normal but the compression ratio is very gentle until a high output level is reached when the compression ratio has to be greatly increased.

Hard....The limiter knee is very high, the compression starts fairly gentle for a few dBs of extra output level but then the compression ratio has to be greatly increased.

21. TB > Comm

This allows TALK 5 circuit to be set as an inter-commentators talkback. Where the commentators can talk/listen to each other off air.

Available options are:

Disabled....The commentators do not hear each other when talk 5 is pressed

Enabled....The commentators have off air communications with each other when TALK 5 is pressed ****NOTE**** TB Send 5 XLR still has audio output on it even when TB > Comm is enabled.



If enabled after leaving setup the display will show this icon

22. Mute on TB

This affects the inter operation of the talkback switches and the channel on status.

Available options are:

Enabled....When a talkback switch is pressed the associated channel on is muted

Disabled....If a talkback switch is pressed then the channel on status does not change

23. On Air Lock

This sets the channel on switches to be permanently on.

Available options are:

Disabled....Channel on switches work as normal

Enabled....Channel on switches are always on even setting unit to Cough mode will NOT affect the switches

24. Input Lock

This disables the front panel 'MODE' & 'PHANT' switches. The mode and phantom power status will be fixed at the settings they were in when this feature is enabled.

Available options:

Disabled....Mode & Phant switches work as normal

Enabled....Mode & Phant switches cannot be changed by the commentator

25. Gain Lock

This disables the front panel Trim gain control and leaves the gain setting as per its setting when this mode was enabled.

Available options are:

Disabled...The front panel trim control work as usual

Enabled...The front panel trim control cannot be operated by the commentator

26 - 28 IPID Char A, B & C

IPID is used for identification of the IP webpage used for remote control of input gains.

As it is possible to have more than one Talent box being remotely controlled by one engineer using the Talent boxes' web interfaces, a simple system is needed for identifying which talent box a web page is connected to.

The IP ID allows three characters to be set in the range of 0, 1 & 2 for each Character A, B & C. This means that a total of 27 unique IDs can be set for different Talent Boxes.

When a web browser is connected to the web page of the talent box then the IP ID is displayed on the web page.

Default: **0, 0, 0**

GS-Talent LINE IDENTIFICATION

The Talent Box has a built in line identification and tone circuit. If used it can be routed to any of three different sets of outputs, 'DIRECT OUTPUTS', 'MIXED OUTPUTS' & 'TALKBACK SEND OUTPUTS'. See features 8, 9 & 10 in the setup information for further details on how to enable/ disable the ident to each of these circuits.

RECORDING AN IDENT:

On the rear of the Talent Box is a switch marked 'IDENT'. To record an ident move/ hold the switch upwards for approximately 3 seconds. Once in the record ident mode you can let the switch return to the centre 'off' position and the LCD screen will show the following icons:



Next to the musical note, the 'R' will flash to indicate that you are recording an Ident

The audio input for the ident recorder is channel A.

Once in ident recording mode, record the message that you want to use as your ident by connecting a microphone to Channel A.

To tell the ident recorder that you have finished recording your message you need to press the front panel 'Done' switch.

The ident recorder has a maximum length of 20 seconds. If any of the 20 seconds remain unused after pressing the done button at the end of recording your message, then the ident recorder will automatically fill the remaining time with a 1kHz tone at a nominal zero dB level.

PLAYING AN IDENT:

On the rear of the Talent box is a switch marked 'IDENT'. To play a pre-recorded ident move this switch downwards to the 'PLAY' position. The ident's output will now be routed to the required outputs and the LCD screen will show the following icons:



Next to the musical note, the 'P' will flash to indicate that you are playing an Ident

If an ident is playing and being routed to an output then that output will have no other audio present on it.

GS-Talent Web Server

The Talent Box has a built in web server. It provides a very simple interface to allow remote control of the front end gains of each of the 3 audio inputs.

The concept of the design was to provide the facilities to control the front end gain circuits EITHER remotely via the web interface OR locally via the rotary trim controls, but never both at the same time.

CONNECTING TO YOUR NETWORK:

On the rear of the talent box is an Ethernet 'NETWORK' connector. When you first connect to your network you will see the left hand side LED on this connector illuminate, this indicates that the device has seen the network and should be OK.

FINDING THE IP ADDRESS:

Once connected to your network, the network will dynamically assign the Talent Box an IP address (Due to the limited user interface of the Talent box it is not possible to set a static IP address).

To see the IP address assigned to the Talent box first make sure you are NOT in setup mode and then press and hold the front panel 'SET' button. While you are holding the SET button down the IP address will be shown on the LCD screen.

It may take up to 1 minute after connecting your Talent box to your network before the IP address is available to be seen on the LCD.



CONNECTING TO THE WEB INTERFACE:

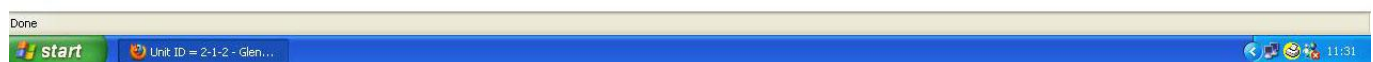
Make sure your computer and the Talent Box are both connected to the same network. On your computer open a web browser (Mozilla, Google Chrome, IE, etc) and in the address bar type in the IP address that your Talent box has been assigned by the network. You will then see a web page similar to this:

Unit ID = 2-1-2 - Glensound Talent Box

Glensound Talent Box IP Remote Control

Unit ID = 2-1-2

	Channel A	Channel B	Channel C
Current Input Gain	+02.0dB	+01.5dB	+00.5dB
Adjust Gain	⏮ ⏭	⏮ ⏭	⏮ ⏭



AT THIS STAGE YOU ARE NOT YET REMOTE CONTROLLING THE FRONT END GAINS.

YOU ONLY TAKE CONTROL OF THE FRONT END GAINS WHEN YOU PRESS ONE OF THE ADJUST GAIN BUTTONS ON THE WEB PAGE.

When the webpage takes control of the front end gains the LCD screen on the Talent Box displays the following icon:



Our little 'web phantom' icon and the letter I indicate that the gains are now being controlled remotely.

GAIN LEVELS

The gain levels that are displayed on the web page are trim levels +/- from lineup. The lineup level varies depending on mode, i.e. Mic, Line & Mic with Phantom power all have different 'Line Ups'.

When returning to manual control of the gain trim pots on the front of the Talent Box, the trim level will 'jump' to the position set by the front panel trim pot so this should never be done while on air.

UNIT ID:

The unit ID on the web page is meant to allow a quick identification of which Talent box you are connected to. The ID number can be manually set, see SETUP features 26 – 28.

CLOSING YOUR BROWSER:

Once you have taken control of the remote gains via your browser, closing your browser does NOT return the Talent box to local trim gain control. This is done deliberately to prevent accidental closing of the browser making sudden large changes in the front end gain.

Even after your browser has been closed the Talent box that it was connected to will still show the web phantom icon.

RETURNING TO LOCAL TRIM GAIN CONTROL:

When you return to local trim gain control there is likely to be a sudden change in the gain setting as the amplifier takes its level information from the physical position of the front panel trim control instead of the last change of the web page. To prevent this being done accidentally to return to local gain settings you must either power the Talent Box off and on again OR enter and exit setup mode.

GS-Talent Remotes

The Talent Remotes are designed to extend the work surface of a channel. Usefully if a remote unit is connected to the 'B' commentators' position then full access to a dedicated B commentators headphone mix and access to the talkback send circuits is provided.

To connect a remote box to the main unit just connect a standard 'A' to 'A' usb cable. This cable carries just power (in the standard USB format) and data. No audio is carried on this USB cable and if required link through audio connectors are provided on the front and rear of the remote boxes.

To prevent a USB cable accidentally coming unplugged we are using very special locking USB connectors, once a cable has been inserted, to remove it the catch above the cable must be pressed upwards.

As soon as a remote box is connected to the main Talent box the remote box will take control of the headphone mix circuits & mic routing and the headphone mix will alter to reflect the position of pots on the remote unit.

GS-Talent Technical Details

COMPRESSOR/ LIMITER CIRCUITS:

The plot below shows the response of the compressor/ limiter circuits. The left hand scale of the graph shows output level and the bottom scale shows input level.

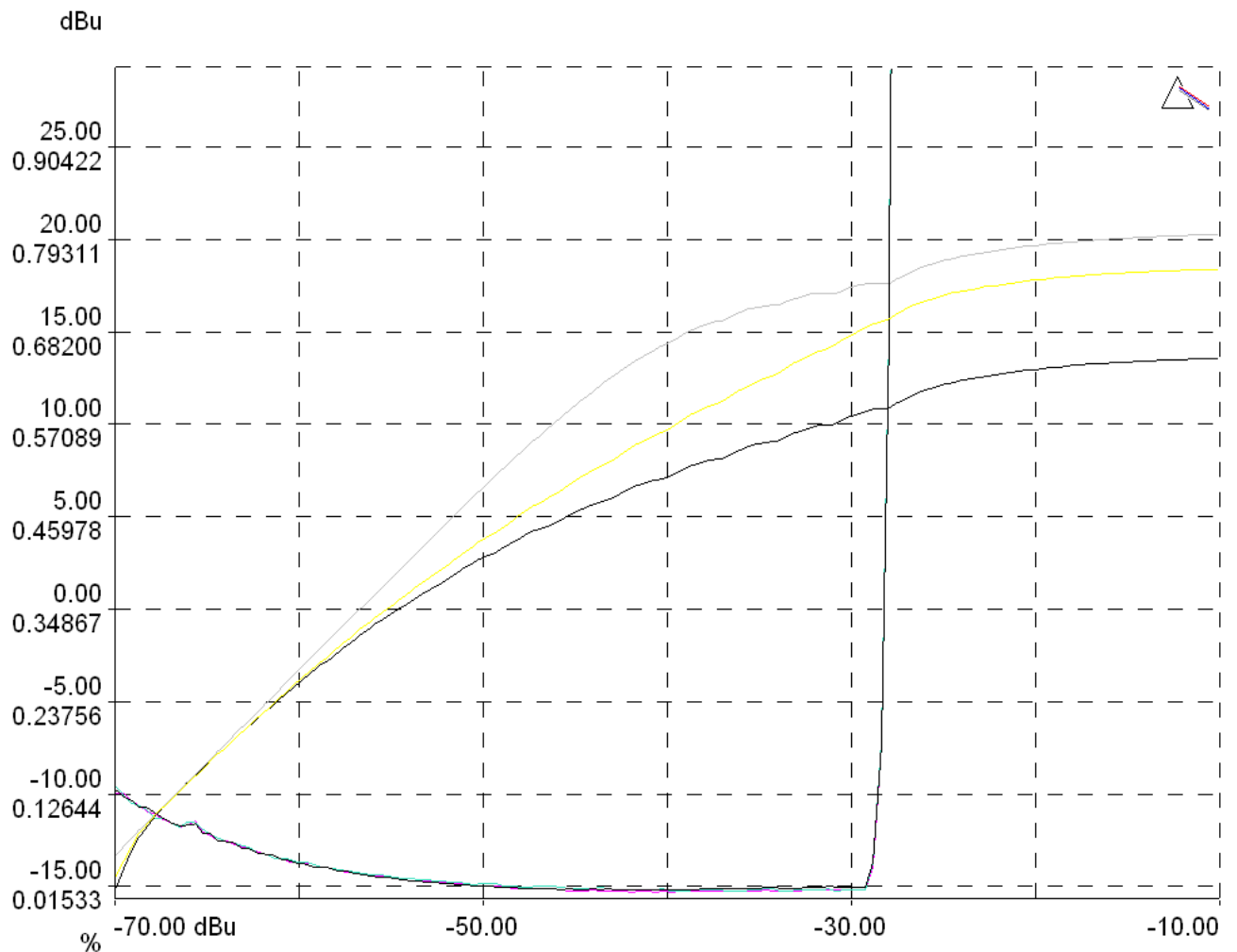
There are 3 compressor traces on the graph:

Light Grey = 'Hard'

Yellow = 'Soft'

Black = 'Normal'

The 4th trace shows a combination of THD & Noise and the near vertical line indicates the clip point of the ADC circuit.



GS-Talent Connectors

Signal inputs:

Female XLR-3. Pin 1 = GND, Pin 2 = hot (phase), Pin 3 = cold (antiphase)

Signal outputs:

Male XLR-3. Pin 1 = GND, Pin 2 = hot (phase), Pin 3 = cold (antiphase)

Local record:

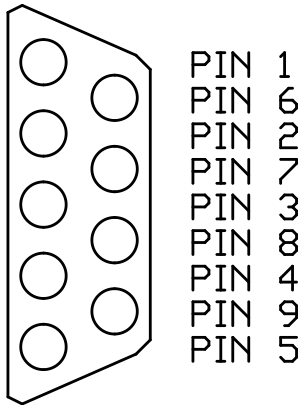
3.5mm stereo jack socket. Tip = signal, Ring = signal, Sleeve = GND. Mono plugs may be used without damage.

Headphone outputs:

6.35mm stereo jack socket. Tip = L signal, Ring = R signal, Sleeve = GND. Accept A- or B-gauge jack plugs.

GPIO

The below diagram shows the pin out of a D 9 socket shown from the 'non' wiring side.



PIN NUMBER	FUNCTION	ALTERNATIVE FUNCTION
1	GND	
2	TB3 Active	
3	TB4 Active	
4	TB5 Active	
5	N/C	
6	Ch A out	Ch A in
7	Ch B out	Ch B in
8	Ch C out	Ch C in
9	N/C	

Outputs are open collector.

The functionality of the Ch GPIO operation can be altered between outputs & inputs (see 7 of setup). This allows either a tally output of the Ch on status (either on/off) for perhaps driving red lights etc or it allows an external closure to remotely turn on the Channel.

If remote turning on is used then the channel input GPI is momentary only.