Glensound Electronics Ltd

Ob mixer

Portable Mixer

**GS-GX3 MkII**

***Portable Modular Mixer***

The GS-GX3 is a high quality modular portable outside broadcast mixer and is full of the features required for live outside broadcast work. Primarily designed for radio outside broadcasts, this compact and rugged mixer neatly combines the headphone facilities that presenters need with a powerful array of engineering functions that will be truly appreciated by a broadcast engineer. Its unique features are also ideal for many other applications.

## Key Points

- **Modular format, 4-16 channel frame sizes**
- **Main and Aux mixes**
- **Portable, robust and highly compact**
- **Easy access to all audio connectors**
- **External producers talkback box**
- **Lots of inserts and break points**
- **Internal mains psu/external DC powering**
- **Penny & Giles and 60mm or 100mm fader options**

# GS/GX3 MkII Module Overview


**GS-GX3/MONO MkII**
**Mono Channel Module**


**GS-GX3/STEREO**
**Stereo Channel Module**


**GS-GX3/OUT**
**Main Monitoring and Output Module**


**GS-GX3/AMO**
**AUX Monitoring and Output Module**

## GS-GX3/CMO MkII
**Compressor and Mono Output Module**

## GS-GX3/PROD
**Producers Box**

## GS-GX3/HEAD MkI and MkII
**Operators Headphone and Talkback Module**

## GS-GX3/ISDN
**ISDN Module**

**GS-GX3/MONO MkII**
***Mono Channel Features***

## Mono Channel Features

### FRONT OF MODULE

- **Gain Control**
  The module gain control has a range of -10bB to +30dB using a standard rotary pot for adjustments. Combined with the rear mic/line switch, it gives the module an overall input range of -70dB to +10dB.

- **Low Frequency Cut**
  Cut levels can be set to either 80Hz or 160Hz to reduce low frequency rumble commonly found in amplified speech.

- **Presence Control**
  Two positions of EQ can be set at either 1K6 or 3K2 to boost or reduce frequencies with an increase/decrease of 10dB (in a bell shaped frequency response) which uses a rotary pot for adjustments. This can be turned off and the frequency left flat.

- **Pan**
  For routing audio between the left and right main outputs.

- **Pre-Fade Listen**
  This allows the engineer to listen to the modules audio levels before the fader takes effect.

- **Cut A/B Switch**
  It allows the channel to be turned on or off. A LED illuminates to indicate cut.


- **Faders**
  Faders can be either 60 or 100mm and comes with a Penny & Giles option. All input faders hold 10dB.

- **Aux Fader**
  The Aux fader routs the channel output to the aux mix (mono mix). The fader can be set via the toggle switch to be post master fader or pre master fader.

### REAR OF MODULE

- **Mic/Line Input**
  Balanced XLR input which can be set to mic or line using the toggle switch on the rear of the module.

- **Phantom Power**
  48 volt phantom power can be turned on/off using the toggle switch on the rear of the module.

- **Insert point**
  Break jacks are located on the rear of the module. The output and input of any channel can be used to over-plug effects such as compressors. Output levels are -10dB which provides greater headroom, useful if being sent to an external compressor.

**GS-GX3/MONO MkII**
***Mono Channel Features***

## Mono Channel Features

- **Channel Out/Clean Feed Out**

  **Channel Out**
  Connectors are on the rear of the module. The line output of the module can be selected using the toggle switch located on the rear of the module.

  **Clean Feed Out**
  A line out (on the rear of the unit) of everything on the mixer's main mix less that module. This can be selected via the toggle switch on the rear of the module.

- **CLS/SLS Loudspeaker Switching**
  The loudspeaker outputs are on the main module. The internal settings for 'Cubical Loudspeaker' (CLS) or 'Studio Loudspeaker' (SLS) are provided which determine how these loudspeaker outputs operate when this channel's fader is opened.

### HEADPHONE AMPLIFIER

- **6 Sources Including Program**

  **CF/CH or Mix**
  In the mix position, it is the output of the main mix which is routed to the headphone feed. Set to the CF/CH position, it follows the setting of the toggle switch to the rear of module. When set to 'CH' only, audio from the input of the channel is routed to the headphone feed. In the 'CF' position all the audio on the main mix is routed to the headphone feed but minus that channel's input.

  **Cue**
  Cue comes from two places, with an ISDN module fitted, cue relates to the return audio from the first ISDN codec. The audio from the ISDN codec is routed via the AMO where an insert point is available for over-plugging different audio into this cue circuit. Without the ISDN module, a feed can be inserted directly into the AMO module.

  **Local**
  A pair of inputs located on the AMO module is routed to the headphone via this local pot which is fed to all modules. There is also a local input on the rear of the module itself which allows audio to be inserted solely to that headphone amp which over-pluggs the audio from the AMO module.

  **Speak to Comm and OS/TB**
  This button routs via the TB level control, the operators mic input to the headphone feed or the clean feed output.

  **Producers Box**
  When the producer presses the momentary button on the producers box, the audio (eg. producers voice) is mixed into the right ear only of the headphone feed. Please note, there is no volume control on the module for this source.

- **Output**
  Switchcraft A/B Gauge jack socket.

- **Phase Reverse B Option**
  By internal link

**GS-GX3/STEREO**
***Stereo Channel Features***

## Stereo Channel Features

### FRONT OF MODULE

- **Gain Control**
  The module gain control has a range of -10bB to +30dB using a standard rotary pot for adjustments.

- **Aux Fader**
  The Aux fader routs the channel output to the aux mix (mono mix). The fader can be set via the toggle switch to be post master fader or pre master fader.

- **Stereo/Pan Centre Control**
  This is a switched balance control, if set to the stereo position, sources are routed unchanged to the main stereo mix. If set to the pan centre position, both left and right inputs appear equally in both left and right outputs.

- **Pre-Fade Listen**
  This allows the engineer to listen to the modules audio levels before the fader takes effect. This can be useful when setting the input gain levels.

- **Faders**
  Faders can be either 60 or 100mm and comes with a Penny & Giles option. All input faders hold 10dB.

### REAR OF MODULE

- **Audio Inputs**
  Selectable using the toggle switch.

  **XLR**
  0dB balanced input on stereo XLRs.

  **Phono Connectors**
  -16dB unbalanced input on phono connectors.

**GS-GX3/CMO MkII**
***Compressor and Mono Output Features***

## Compressor & Mono Output Features

### FRONT OF MODULE

- **Line Identification**
  This module has the control of a 16 second IDENT recorder built into it. Up to 16 seconds of voice can be recorded (any of the 16 seconds that is not used is automatically filled up with a 1kHz audio tone). Once recorded, this message can then be continuously sent to the mono output.

- **2 x Compressors**
  These can operate independently or in the joint stereo mode.

- **Compression Threshold**
  Using the rotary pot, the threshold of the compressors can be set between +/- 10dB.

- **Compression Ratio**
  The compression ratio can be set using the selector switch to 1:1, 5:1 or 10:1.

- **Compression Recovery Time**
  Recovery time can be selected to fast, auto or slow.

- **Compression Indicator**
  Each compressor has a 4 LED scale indicator to represent the level of compression being applied.

- **Stereo/Mono Options**
  Selectable using the toggle switch.

  **Stereo**
  Switched to the stereo option, the compressors work together (the settings must be the same in order to prevent different compressions on each channel).

  **Mono**
  Switched to the mono option, each compressor works independently.



### REAR OF MODULE

- **Master Mono Output**
  An XLR connector is derived from the main stereo mix. This is transformer balanced making it suitable for line driving.

- **A/JKS and B/JKS**
  Toggle switches that select the compressor source between the main A or B mix or the jack inputs on the rear of the module.

- **Local Output**
  Local output of each compressor. If this is main A or B mix, it becomes the pre-master fader point.

**GS-GX3/OUT**
***Main Monitoring and Output Features***

## Main Monitoring & Output Features

### FRONT OF MODULE

- **Main Peak Program Meters**
  2 x 14 LED PPM's.
  PPMs follow the main output or is switched to follow pre fade.

- **Pre-Fader Switch**
  **ON** Set to ON, the selected PFL will latch on and be routed to the PPM.
  **OFF** Set to 'OFF', no PFL will appear on the meter.
  **MOM** Set to 'MOM', the selected PFL will appear on the PPM while the PFL button is being pressed.

- **Level Control**
  Loudspeaker output level control.

- **Cut/Dim Switch**
  Loudspeaker output Cut/Dim switch.

- **Main Output Level**
  Master fader for output level.

- **Fader Option**
  Faders can be either 60 or 100mm and comes with a Penny & Giles option.


### REAR OF MODULE

- **Main Outputs**
  A and B main electronically balanced outputs on XLRs.

- **Loudspeaker Outputs**
  A and B are electronically balanced outputs (0dB). The loudspeaker can follow PPM or main outputs. Loudspeakers can be set to dim as either CLS or SLS when input channels are faded up.

**GS-GX3/AMO**
***AUX Monitoring and Output Features***

## AUX Monitoring & Output Features

### FRONT OF MODULE

- **Aux Peak Program Meter**
  1 x 14 LED PPM.

- **Aux Pre-Fader Switch**
  **ON** Set to ON, the selected PFL will latch on and be routed to the PPM.
  **OFF** Set to 'OFF', no PFL will appear on the meter.
  **MOM** Set to 'MOM', the selected PFL will appear on the PPM while the PFL button is being pressed.

- **Aux PPM follows 5 sources**
  1. Aux Output
  2. Local Input
  3. M Output
  4. Cue Input (Either return feed of first channel of ISDN or can be over-plugged locally)
  5. Pre Fade

- **Output Level**
  Aux output level is controlled by a rotary fader.

### REAR OF MODULE

- **Output**
  The mono aux mix output is electronically balanced on XLR.

- **CUE IN / OUT**
  **Input (BRK)**
  Cue input for distributing to headphone feeds of channels.

  **Output (LISTEN)**
  Cue output (If ISDN module fitted).

- **Local Input**
  Two inputs (one balanced 0dB and one unbalanced -10dB) which are mixed together internally and then distributed across the mixer to the local feeds on modules.


**GS-GX3/HEAD MkI and MkII**
***Operators Headphone and Talkback Features***

## Operators Headphone & Talkback Features

### FRONT OF MODULE

- **Operators Mic Input**
  Internal (Front pannel) or external mic (Rear balanced XLR).

- **Line Identification**
  This module has a 16 second IDENT recorder built into it recorded from the operators mic. Up to 16 seconds of voice can be recorded (any of the 16 seconds that is not used is automatically filled up with a 1kHz audio tone). Once recorded this message can then be continuously sent to the mono output.

- **Speak to external output**
  Local balanced external output which the operators mic gets routed to when the button is pressed.

### HEADPHONE

- **Level Control**
  All sources have headphone volume level controls using a rotary pot.

- **5 Sources**

**1. Cue**
Cue comes from two places, with an ISDN module fitted, cue relates to the return audio from the first ISDN codec. The audio from the ISDN codec is routed via the AMO where an insert point is available for over-plugging different audio into this cue circuit. Without the ISDN module, a feed can be inserted directly into the AMO module.

**2. M Out**
Mono output which is derived from the main stereo mix.

**3. Local Input**
A pair of inputs on the AMO module that is routed to the headphone via this local pot. This input is also fed to all modules. However, there is also an local input on the rear of the module itself which allows audio to be inserted solely to the headphone amp which over-pluggs the audio from the AMO module.

**4. Aux Out**
The feed from the aux mix.

**5. Pre-Fade**
Listen to any selected pre fade.

GS-GX3/HEAD Mk I

GS-GX3/HEAD Mk II

**GS-GX3/HEAD MkI and MkII**
***Operators Headphone and Talkback Features***

## Operators Headphone & Talkback Features

### GS-GX3/HEAD MkI Option

- **Left/Both/Right Routing**
  All sources can be routed individually to the left ear, right ear or both ears of the stereo headphone amplifier.

### GS-GX3/HEAD MkII Option

- **Soloed Sources**
  In replacement of the left/right/both toggle switch selector, there is button for each source which allows that source to be soloed into the headphone circuit.

### REAR OF MODULE

- **Headphone Output**
  Switchcraft A/B Gauge 1/4 inch jack socket.
- **Phase Reverse B Option**
  By internal link.
- **Phantom Power**
  48 volt phantom power can be turned on/off using the toggle switch on the rear of the module. Available only for the rear XLR input.
- **Speak to external output**
  Local balanced external output which the operators mic is routed to when the button it pressed.
- **OPs Mic Input (External)**
  Balanced XLR mic input.

**GS-GX3/ISDN**
***ISDN Module Features***

## ISDN Module Features

- **Codecs**
  2 x G722/G711 codecs with an integral multi format terminal adaptor. This is the 'talking' codec that provides voice announcements for easy operator use.

- **Monitoring Loudspeaker**
  As well as providing the codecs and terminal adaptor, this module adds a small front panel monitoring loudspeaker. This loudspeaker either follows the return audio of the codec that is selected via the codec toggle switch, or can be over-plugged via a local input on the rear of the module. The LS volume control adjusts the volume coming out of the loudspeaker.

- **Codec Switch**
  The toggle switch is used to select which codec the key pad is dialling for or can be set to ‘safe’ which disengages the keypad.

- **Break Jack Inputs**
  The rear of the module has break jack inputs to allow audio to be plugged directly into the send channel of either the codecs. The codec receive outputs can be used for feeding external equipment or over plugging into particular mixer channels.

- **M OUT**
  Additional output of the mono mix on the rear of the module.

- **Loudspeaker**
  Please note: the loudspeaker only comes with the mixing desk if an ISDN module is fitted.

**GS-GX3/PROD**
***Producers Box***

## Producers Box Features

- **Connection**
  The producer's box connects to the desk via D25 connectors (on both producers box and the mixer) of which a 1.5 metre 'D' cable is provided with the producers box. This supplies all the audio and the power to operate the producers box.

- **Monitoring**
  The producer can listen to two main sources, the main mono output mix and the cue feed which has individual volume controls for each.

- **Listen**
  The producer can listen to the first 10 inputs of the mixer which all have individual volume controls and can be turned off via toggle switches. When switched on, the audio will only be present in the left ear.

- **Headphone Feeds**
  The producer can talk individually into the headphone feeds of the first 10 channels of the mixer by pressing the momentary button for each channel. This routs the producers mic into the right ear of the headphone feed of the channel being talked to.

- **Programme and Cue**
  The mic input has a 3 position gain switch and an A/B gauge headphone jack on the front panel. The two main sources (programme and the cue) have their own volume control and are only present in the right ear.

- **Headphone Output**
  The headphone 1/4 inch A/B Gauge Switchcraft jack located at the front of the box.

- **Producers Mic Input**
  The producers microphone input uses a balanced XLR and has a toggle switch to select 3 different gain levels including one which has 12V phantom power available.

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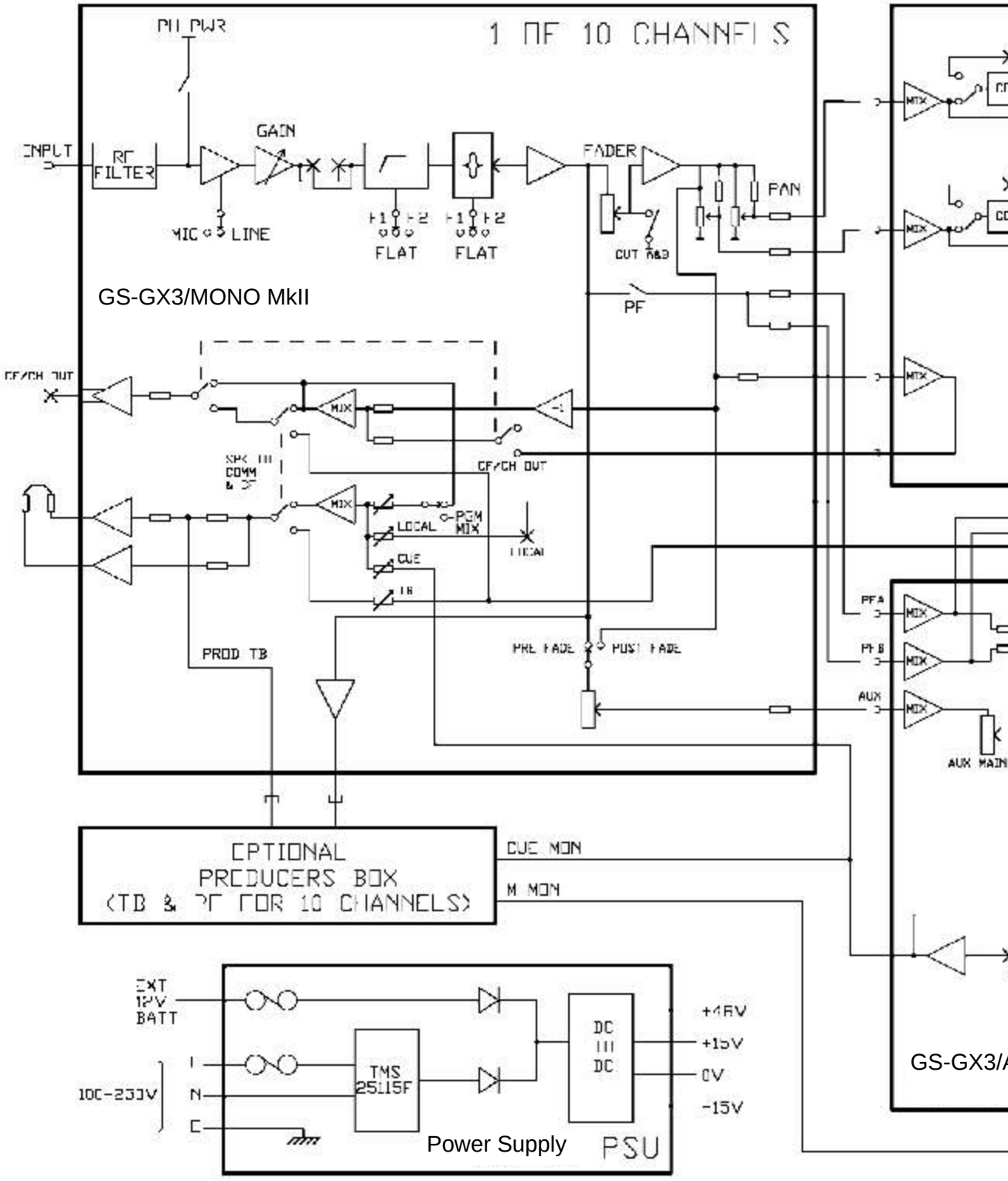
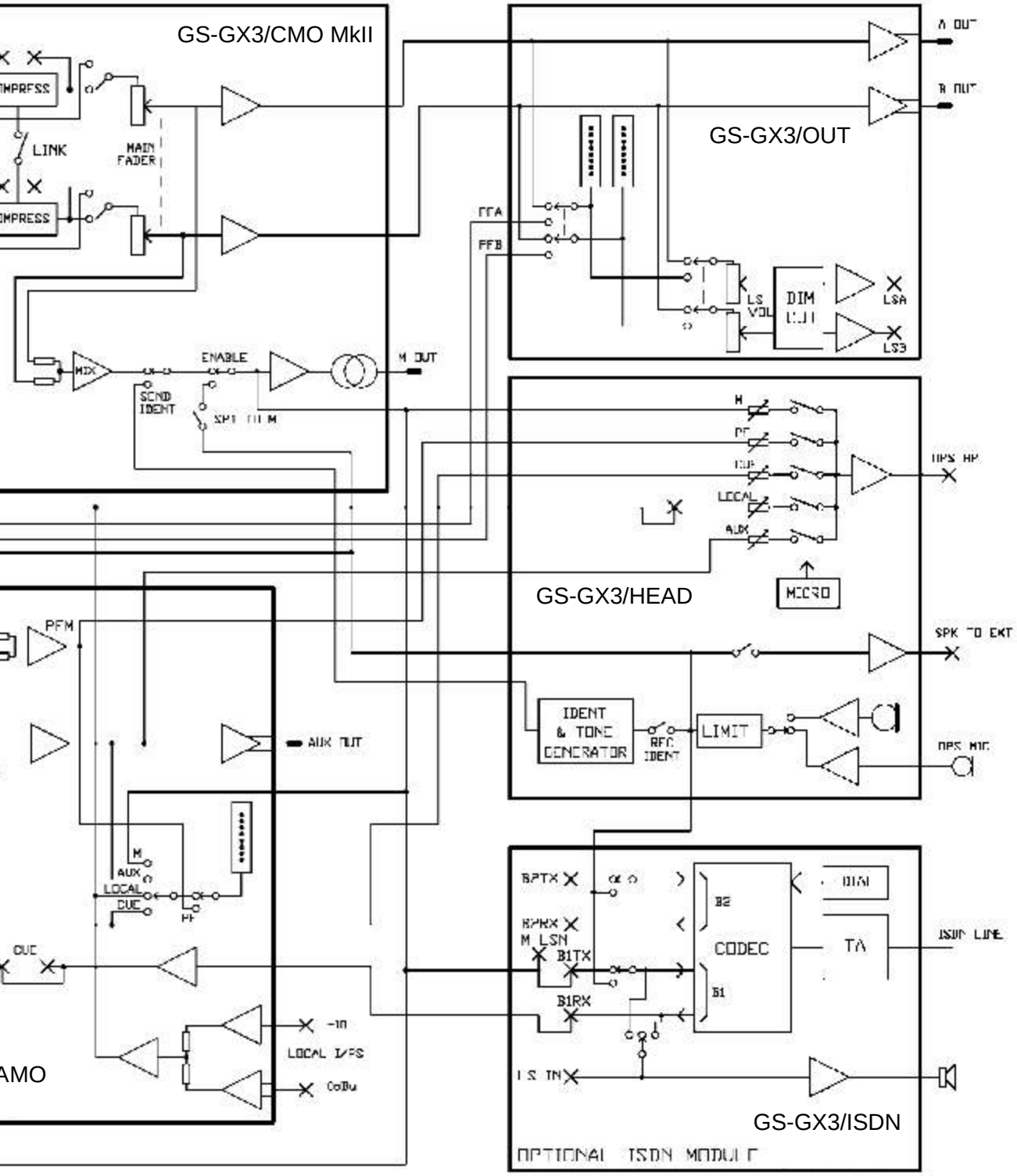
block diagram

Ob mixer






**GS-GX3 MkII Block Diagram Showing Individual Modules**

# Technical Specification

specification

| | |
|---|---|
| **GENERAL SPECIFICATIONS** | |
| **HEIGHT** | 150mm |
| **WIDTH** | 150mm x 30mm per channel |
| **DEPTH (Excluding Connectors)** | 380mm |
| **MAINS CONSUMPTION** | |
| **FOR A TYPICAL 10 MONO CHANNEL, 2 STEREO CHANNEL,** | 240V, CURRENT = 148mA, WATTS = 20W |
| **WITH COMPRESSORS, STEREO PPM, MON PPM, AND HEADPHONE MODULE** | 110V, CURRENT = 245mA, WATTS = 20W |
| | 12V, CURRENT = 1.4A |
| | 48V, PHANTOM POWER 5.68mA |
| **MONO MIC CHANNEL** | |
| **GAIN** | -70dB TO +10dB |
| **FREQUENCY RESPONSE** | 25Hz TO 20KHz (-1dB) |
| **DISTORTION @ +8dB** | >0.15% (100Hz, 1KHz, 10KHz) |
| **NOISE @ LINE UP** | >-53dB @ MAX GAIN (22Hz-22KHz) |
| **NOISE ON CHANNEL @ MAX GAIN** | >-55dB (22Hz - 22KHz) |
| **STEREO LINE CHANNEL** | |
| **GAIN** | -10dB TO +10dB |
| **FREQUENCY RESPONSE** | 25Hz TO 20KHz (-2Db) |
| **DISTORTION @ +8dB** | >0.02% (100Hz, 1KHz, 10KHz) |
| **NOISE @ LINE UP** | >-75dB (22Hz - 22KHz) |
| **CHANNEL EQ** | +-12dB CUT/BOOST @ 1K6 - 3K2 WITH AN AVERAGE Q |
| ***CHANNEL MEASUREMENTS*** | |
| **MAX INPUT GAIN BEFORE CLIPPING** | |
| **MIC INPUT** | -24dB |
| **LINE INPUT** | +16dB |
| **MAX OUTPUT** | +25dB |
| **A/B OUTPUT** | |
| **CROSS TALK** | |
| **1KHZ TONE FADER @ 0dB** | >-61dB (22HZ - 22KHZ) |
| **NOISE ON CHANNEL AT LINE UP** | >-67dB (22HZ - 22KHZ) |
| **DISTORTION @ +8dB** | >0.02% (100Hz, 1KHz, 10KHz) |
| **LSA LSB** | |
| **GAIN** | 30dB |
| **DISTORTION @ +8dB** | >0.02% (100Hz, 1KHz, 10KHz) |
| **NOISE @ LINE UP** | >-63dB (22Hz - 22KHz) |
| **MONO OUTPUT** | |
| **NOISE ON CHANNEL AT LINE UP** | >60dB (22HZ - 22KHZ) |
| **DISTORTION @ +8dB** | >0.02% (100Hz, 1KHz, 10KHz) |
| **AUX OUTPUT** | |
| **NOISE ON CHANNEL AT LINE UP** | >-61dB (22HZ - 22KHZ) |
| **DISTORTION @ +8dB** | >0.02% (100Hz, 1KHz, 10KHz) |
| **OPS HEADPHONES** | |
| **FREQUENCY RESPONSE** | 25Hz TO 20KHz (-1dB) |
| **DISTORTION @ +8dB** | >0.09% (100Hz, 1KHz, 10KHz) |
| **NOISE ON CHANNEL AT LINE UP** | >-55dB (22HZ - 22KHZ) |
| **COMMS HEADPHONES** | |
| **FREQUENCY RESPONSE** | 25Hz TO 20KHz (-1dB) |
| **DISTORTION @ +8dB** | >0.06% (100Hz, 1KHz, 10KHz) |
| **NOISE ON CHANNEL AT LINE UP** | >-56dB (22HZ - 22KHZ) |
| **ALL HEADPHONES OUTPUTS ARE WIRED** | LEFT EAR PHASE |
| | RIGHT EAR PHASE REV |

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