

# GS3000



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8 buss in-line recording mixer

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Patchable valve preamps

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MIDI mute automation

**ALLEN**  
  
**HEATH**

# GS3000

## INTRODUCTION

For decades, analogue consoles have been adding warmth and clarity to countless hit records. **GS3000** combines **fresh, innovative design with the very best of analogue technology.** For commercial and project studios, **GS3000** offers the convenience of **intuitive, instant control**, plus the reassurance of proven **dependability and ease of service.**

Unlike any other console in its price range, **GS3000** gives you two patchable **SVT (Symmetrical Valve Technology) valve preamps**, allowing you to add touches of unmistakable tube warmth to your mixes.

Over the years, the name **Allen & Heath** has become synonymous with **smooth and powerful EQ.** All mono inputs have access to **4 band equalisation with fully parametric mid bands**, giving superb corrective and creative EQ capability.

The console's **twin-fader, in-line format** gives **total control at all stages of the recording process**, whilst the intuitive panel layout makes creating the perfect mix **easier than ever.** Each input strip has two paths: one for the music source and one for the multitrack recorder returns. The mix set up for the studio monitor during tracking becomes the main mix for mastering.

All in all, **GS3000** has the **flexibility and functionality** and the **outstanding sound quality** that true professionals demand.

- 8 buss routing architecture
- 24 and 32 channel frames
- 52 and 68 inputs to the mix
- 2 valve mic/line/guitar preamps
- Wide ranging, high performance mic preamp
- In-line twin fader input format
- 4 band EQ with full parametric mids
- 2 dual stereo channels with automation as standard
- 6 aux sends with 2 automated master mutes
- MIDI mute automation
- 4 mute groups
- MIDI machine control
- Tape send and return on every channel
- Group/direct switching
- Oscillator for signal setup
- Talkback facility
- 2 studio feeds
- Solo-in-place and PFL on both channel paths
- Channel status indicator LED
- Optional 12 segment input bargraph meterbridge
- Dedicated interface for three 2-track recorders



ALLEN & HEATH **GS3000** RECORDING CONSOLE

**HF 1500c** **LF 300c**

**EQ 300c** **EQ 600c** **EQ 1200c** **EQ 2400c**

**HF 1500c** **LF 300c** **EQ 300c** **EQ 600c** **EQ 1200c** **EQ 2400c**

**AMP 1** **AMP 2** **AMP 3** **AMP 4**

**AMP 5** **AMP 6** **AMP 7** **AMP 8**

**+48V LINE** **+48V LINE**

**GAIN** **GAIN**

**GUITAR MODE** **GUITAR MODE**

**200c** **1000c** **1000c** **200c**

**EQ 300c** **EQ 600c** **EQ 1200c** **EQ 2400c**

**VALVE DRIVE** **VALVE DRIVE**

**HE-CUT** **HE-CUT**

**LEVEL** **LEVEL**

**VALVE PRE-AMP 1** **VALVE PRE-AMP 2**

**LINK AUX 1-3** **LINK AUX 2-4**

**PRE GLOBAL SELECT** **PRE GLOBAL SELECT**

**AUX 1** **AUX 2** **AUX 3** **AUX 4** **AUX 5** **AUX 6**

**AFL** **AFL** **AFL** **AFL** **AFL** **AFL**

**TALK** **TALK** **TALK** **TALK** **TALK** **TALK**

**MUTE** **MUTE** **MUTE** **MUTE** **MUTE** **MUTE**

**L-R** **MD** **MD** **MD** **MD**

**AUX 1** **CRM** **AUX 2** **CRM**

**STUDIO 1** **STUDIO 2**

**MUTE** **MUTE** **MUTE** **MUTE**

**AFL** **AFL** **AFL** **AFL**

**TALK** **TALK** **TALK** **TALK**

**L** **R**

**+16** **+15** **+10** **+5** **0** **-5** **-10** **-15** **-20** **-30**

**METRONOME SOURCE** **MON CHAN**

**SWOP OUTPUT LEVEL**

**HOLD FOR HOLD FUNCTION**

**CHANNEL MUTES** **MONITOR MUTES**

**ALL SAFE**

**OSC TO GRPS** **ON** **100c** **10k**

**TALK LEVEL**

**TALK TO GRPS**

**STRK** **DUB 2-1** **DUB 1-2** **DUB 1-3**

**PR/LAR** **2TRK1** **2TRK2** **2TRK3** **ALL-UP-L-R** **MONO** **PHONES**

**ALT** **CRM** **SEARCH MUTE**

**ME B TO L-R**

**STORE** **RECALL**

**SWAP SHOT**

**MUTE GROUP** **1** **2** **3** **4**

**MARK** **LOCATE** **STOP** **PLAY** **RECORD**

**TRACK ENABLE** **HOLD + RESET MUTE**

**INPUT LEVEL** **INPUT LEVEL**

**AUX 1** **AUX 2** **AUX 1** **AUX 2**

**BAL** **BAL**

**MUTE** **MUTE**

**ST.3** **ST.4**

**GAIN** **GAIN**

**HF 1500c** **HF 1500c**

**MF1 2500c** **MF1 2500c** **MF2 3500c** **MF2 3500c**

**LF 300c** **LF 300c**

**AUX 1** **AUX 2** **AUX 3** **AUX 4** **AUX 1** **AUX 2** **AUX 3** **AUX 4**

**BAL** **BAL**

**MUTE** **MUTE**

**MARK** **LOCATE** **STOP** **PLAY** **RECORD**

**1** **2** **3** **4** **5** **6** **7** **8**

**+15** **+10** **+5** **0** **-5** **-10** **-15** **-20** **-30**

**STEREO** **STEREO** **STEREO** **STEREO**

**L-R** **L-R** **L-R** **L-R**

**AFL** **AFL** **AFL** **AFL**

**MUTE** **MUTE** **MUTE** **MUTE**

**1-2** **3-4** **5-6** **7-8**

**PAN** **PAN**

**MUTE** **MUTE**

**L-R** **L-R**

**MONITOR** **MONITOR**

# Mono dual input/output strips

GS3000 input/output channels are designed to provide the very best in analogue sound technology. Intuitive operation is assured through clear layout and extensive use of illuminated switches and leds, indicating setups at a glance. Frame sizes of 24 and 32 mono inputs plus 4 stereo inputs as standard are available, giving up to 68 inputs to the mix.

## DUAL PATHS - DUAL FADERS

Like most modern large-format recording consoles, GS3000 has in-line architecture: the recording ("channel") path and the monitor/mixdown path are both contained in the same channel strip. This increases the number of input channels for a given frame size, gives more tape track returns and makes the console easier to use because the monitor fader is in line with the recording channel fader.

With GS3000 the recording level is set on the 60mm channel fader, and the signal is monitored from tape on the long fader. When the recording is completed and the multitrack is set to playback, the long 100mm faders are already set to the correct level for mixdown.

Track bouncing is also straightforward with GS3000: send the replayed monitors or tape returns via their pans to the appropriate group(s) and switch the record outputs to *group*.

Access is provided from both paths to the 8 groups, 6 auxes and to the stereo B "channel" mix and main L-R "monitor" mix.

## BRITISH PARAMETRIC EQ

Each channel strip has a four band EQ with two fully parametric mid sections. The Q is continuously variable from 0.6 for subtle changes to 2 for radical correction or effect. The frequency range of the mid sections is extended especially at low frequencies, and the cut and boost increased to give more creative potential.

For extra flexibility, the mid EQ sections can be inserted either in the recording channel path or the mixdown monitor path, as can the high/low frequency EQ sections. The *EQ in* switch provides quick in-and-out comparisons in all setups.

## MIC/LINE INPUTS channel path

### NEW MIC PREAMPS

The GS3000 uses a new microphone preamp which has been specifically designed to give a wide gain range, high linearity and extremely low noise. Noise performance at mid gain is as much as 12dB quieter than other designs.

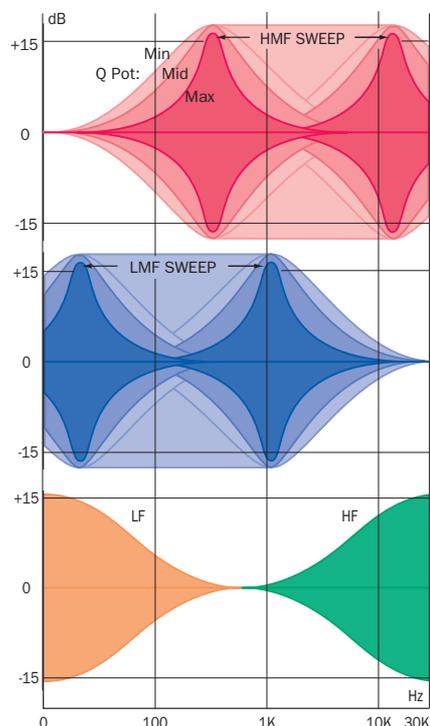
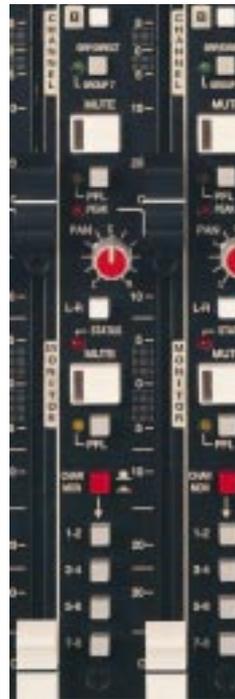
Extensive functionality is provided in every strip: phantom power switches on each mic input, phase switches, low cut filters, the EQ splitting capability, individual stereo mix buss routing and automated muting on both channel and monitor paths. In addition to the pre-fade listen monitoring there is also a solo-in-place system which allows you to hear any channel or monitor signal post fade and in stereo for 'in the mix' checking.

### FORWARD ROUTING

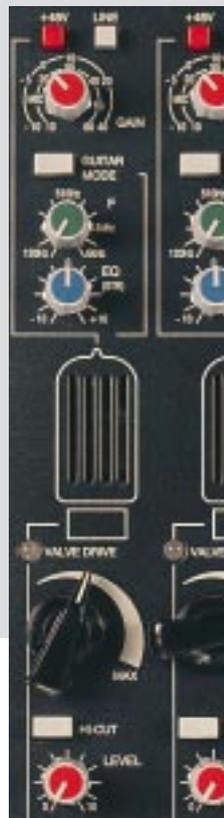
Post-EQ, the channel path is fed via PFL, mute and fader to the *grp/dir* switch: send either the direct channel output or the appropriate group to the *tape out* jack.

*Pan* and *on* switches also take the channel path's output to the stereo B *channel mix* for extra monitors and feeds; and to the *source* switch at the foot of the channel. Select *channel* as the source to submix to tracks during multitracking and bouncing, or for more effects during mixdown.

For extra inputs at mixdown, say from MIDI instruments, channel-path inputs can be sent to the main monitor mix by pressing *B TO L-R* on the master section.



## Built-in



# GS3000

## Dual stereo inputs

### 4 STEREO INPUTS

Two dual stereo channels are mounted on the right of the master section - 4 stereo inputs in all.

All stereos have automated mute, linear faders, stereo PFL and routing via balance controls to both mixes.

The lower stereos with their 100mm faders are ideal for electronic instruments and MIDI-sequenced sources. They have *gain* pots, 4-band EQ and, like the mono channels, routing to all auxes.

The upper stereos are built for FX returns: they include input matching for hi or lo levels and routing to auxes 1 and 2 for monitor mixes.

Innovative switching in the master section enables extensive use of auxes and stereos for effects in cues and the final mix.

### TAPE RETURN INPUTS

#### monitor path / main L-R mix.

Each channel strip has a tape return input jack socket, switchable between +4dBu and -10dBV levels.

This *monitor* path has a 100mm fader and can be routed to the L-R mix buss to create a stereo mix during track-laying. The mix created here for control room monitors during tracking will need little alteration for mastering at mixdown.

With no jack plug in the tape input connector, the mic/line input is fed, pre-insert, to the monitor path for long-fader control in sound-reinforcement applications.

### 6 AUXES PLUS XFX

Feeds to any four of the 6 auxes can be chosen in pairs from either the mic/line channel path or the tape return monitor path.

Auxes 1 and 2 can be set pre or post-fade by global switches in the master section: pre-fade for musicians' cues from the channel path, post-fade for dedicated effects from the channel path to tape, or for extra effects from the monitor path on mixdown.

Auxes 3 to 6 are post-fade FX sends, with 5 and 6 included in the mute automation system for programmed control of effects.

When mixing down, a separate post-fade stereo effects send can be created by pressing the XFX button: this sources the channel fader from the long monitor fader. The channel fader then becomes the stereo level send (which can be mute automated) with its output available on the studio feed output jacks.

### PEAK AND STATUS LEDS

Each strip has a red *peak* warning led which monitors the signal at the mic/line preamp, after the EQ and after both faders. The led illuminates if signal level is within 6dB of clipping at any of these points.

Linked to the MMC control, the *status* warning led shows record-ready and channel-safe conditions.

## SVT valve preamps

Allen & Heath has introduced its SVT (Symmetrical Valve Technology) in the GS3000. Two, double-triode ECC83 valve amplifiers can be patched to add warmth and colour to inputs or mixes.

Based on resurgent high-fidelity vacuum tubes, SVT can be configured in symmetrical mode for regular mic/line or mix sources, or single-end cascaded 'guitar' mode to give the type of pleasing harmonic distortion much sought after by guitarists.

In mic/line mode, the double triode valve is balanced, each triode amplifying one half cycle. Maximising the characteristics of the valve, this low noise configuration compresses and then soft clips both halves of the cycle equally, ensuring that only low order harmonics are produced when the valve is overdriven.

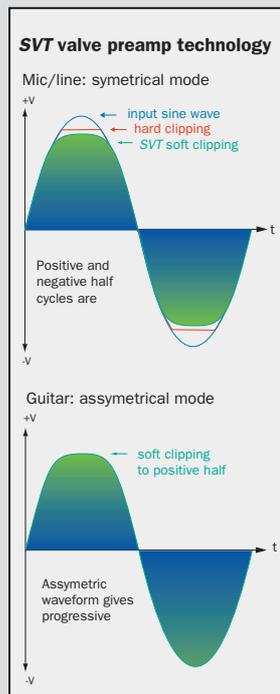
In *guitar* input mode, the valve is not balanced, so

the positive half cycle will distort differently from the negative when overdriven. This produces the rich second harmonic distortion, so often absent from solid state guitar amps.

Inputs are taken via gain controls from balanced XLR and TRS jacks for mic or line sources. For *guitar* mode a high-impedance input is provided, with a pre-valve swept-frequency EQ.

The *valve drive* control sets the colouration created by the valve and a switchable *high-cut* filter removes hf and enhances warmth. Output is sent to the rear-panel jack.

Patch to channel insert for full EQ and routing, or to group to record direct to tape; or patch to the master mix (L and R inserts) to add warmth to the whole mixdown.



# Master section

# GS3000

## GROUPS AND SUBGROUPING

The 8 group busses can be used either in mono or as stereo pairs. If the input is panned fully left or right the signal will go to one group. The 8 group buss outputs are sent, post fader, for recording to the related *grp/dir* tape out switches on the I/O strips.

Each group has an insert point before its 100mm red fader. Patch in group effects here, or sources you want to lay straight to tape on the shortest path; the valve preamps, for example.

The faders are arranged in stereo pairs to feed subgroups to the main mix, via their individual *L-R* switches. The *stereo* switches can be a great help at mixdown: select *stereo* to feed a pair of subgroups to the L-R mix. Without *stereo* selected, each mono subgroup is centrally placed in the mix. You can monitor the submix in stereo by pushing both *AFL* switches together.

Each group is metered post-fade by a 12 segment peak response bargraph. Red LEDs indicate when stereo has been selected and when group signal level exceeds 5dB below clipping.

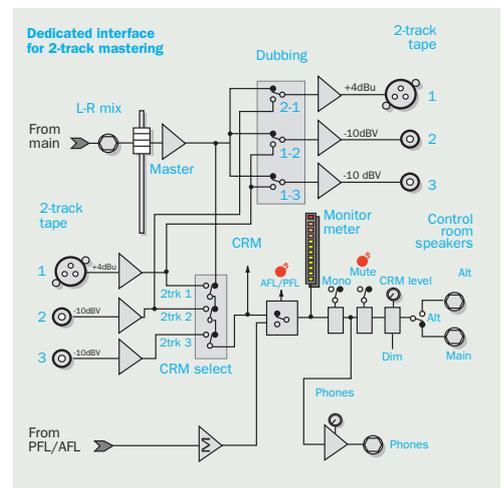


## DEDICATED INTERFACE FOR 3 TWO-TRACK RECORDERS

Interfacing to 3 two-track recorders is easy with the GS3000 which has dedicated inputs and outputs for one high level and two low level machines.

The L-R mix stereo output is fed, via an insert point for signal processing, through the master fader to all three balanced recording outputs.

Dubbing switches enable easy copying from one recorder to another, as well as multiple mastering, without repatching cables.



## Monitors and feeds

### CONTROL ROOM MONITORS (CRM), PHONES AND MASTER METERING

The CRM output monitors the main L-R mix from the multitrack returns during tracking and mixdown: GS3000 sends this signal from the master fader through a *speaker mute* button (with warning led) via a level control to the Control Room Main jack output. Engineers' headphones follow the same signal, before the mute, with an independent level control.

A second output for alternative "hi fi" loudspeaker listening instead of the CRM is selected by the *alt* switch, and a *mono* check is provided for headphones and speakers.

Any *AFL* or *PFL* selection on the console overrides the L-R mix monitor, and is warned by a big red led in the master section as well as individual LEDs on the I/O strips. Depressing one of the 2-track buttons also overrides the monitor mix, for listening to master or dubbed tapes.

### MASTER METERING

The 12-segment master L-R bargraph at the top of the section follows CRM selections, pre the mono switch, for visual level checks on main, *PFL/AFL* and 2-track signals.



## STUDIO MONITORS AND FEEDS

GS3000 supports two separate and versatile stereo feeds for studio foldback or headphones, giving cues during rehearsals and takes, special stereo feeds and playback from multitrack and masters.

Taken from auxes 1 or 2, or the main L-R mix or mix B, or from the CRM signal, each studio feed has its own *mute* and stereo *AFL* switches (with warning LEDs) and level control. You can even mix the sources, for example to boost the L-R mix with aux 1 send for a musician's cue.

Press *talk* to speak to studio, and set the mic on the adjacent *talk level* pot.

Selecting mix B, you can use studio outputs for special feeds for broadcast or other work.

### XFX OUTPUTS

When mixing down, mix B can be fed post-fade from the *XFX* switches on the channel strips for use as extra stereo effects sends.



# GS3000

## Two-track dubbing

### EXTENSIVE, VERSATILE AUX SENDS

Normally sourced pre-fader from the channel path for the monitors during tracking, auxes 1 and 2 can be globally switched post-fader for dedicated effects to tape. At mixdown they can be used for extra effects to monitor



paths. Separate *talk* switches are provided for auxes 1 and 2, independent of the studio feed *talk* buttons.

Aux 1 and 2 sends can be linked to auxes 3 and 4 respectively so you can send the same effect from the monitor and channel paths when needed: perhaps when mix B is being used for a special feed.

Post-fader auxes 3,4,5 and 6 are intended normally for effects sends from the L-R or B mix.

All six aux sends route through level controls to rear jacks, all with AFL feeds with warning leds. Auxes 5 and 6 have mutes for automation of effects or feeds.

### OSCILLATOR AND TALKBACK

GS3000's built-in oscillator and talkback mic circuits give you full facilities for talking to cues, multitrack checks, lineup and slate. Talkback and oscillator have separate level controls, and oscillator frequencies of 1 or 10kHz can be selected to feed the groups, or switched off for safety.

*Talk to groups* can be selected for tape slates on the multitrack and routed L-R to the main mix for 2-track recorders. The CRM is automatically dimmed when talkbacks are selected or the oscillator is switched on.



Two banks of panel switches give comprehensive routing for mixdown recording, playback, dubbing and monitors. You can record to all three tape machines, dub from tape 1 to 2 and 3, or from 2 to 1.

Combined with its line-up oscillator and talkback facilities, GS3000 provides a comprehensive 2-track management system for today's mini-disc, cassette, digital, recordable-CD and hard disk machines.



## Meterpod options

### FOR ALL-CHANNEL METERING

Meterbridges are available for GS3000 24 and 32 strip frames to give full 12-segment led metering of all channels, plus VU metering which follows the master L-R led meters. The meterpod can be ordered with the console or fitted at a later date.

The *metering* switch in the master section globally selects either tape sends or returns, and a tamperproof mode switch sets meter sensitivity to match hi or lo multitrack levels.

Stereo 100mm fader (monitor) paths are metered as mono sums, selectable pre or post fader.



# Connections

# GS3000



Master section



Mono i/o channels

# Mute automation, MIDI and MMC

# GS3000

Full mute automation is provided on GS3000 with power-down memory of all mutes, patches, safes and modes. Every automated mute has a large, illuminated button for quick programming and clear mute pattern setups.

Within GS3000's computer-controlled mute management system, mutes can be set and reselected in 4 manual groups, or stored in up to 128 snapshots which can be selected from the console or by a MIDI programme. Alternatively each mute can be individually driven by MIDI notes from an external sequencer.

Scene settings include 2 mutes on each I/O strip for monitor and channel paths, stereo lower and upper channels and aux 3 and 4 sends for automated effects.

## SETTING SAFES

Individual mutes can be made safe from the system's control at any time (perhaps when I/O strip changes are quickly demanded by a dead mic or faulty lead) using the console's *edit safes* toggle button. Channel *status* LEDs indicate which channels are safe, and pressing the appropriate *mute* button toggles its safe status.

Two buttons let you globally set all *channel* and all *monitor* mix mutes safe, as required.



## SOLO-IN-PLACE (SIP)

GS3000 includes solo in place facilities for use during setup and recording. Their two-handed operation ensures they are not called up by mistake.

Set the balances between sources and effects, exactly as they will sound in the mixes, by muting all channels except the one you are working on: hold down the *solo in place* button and press the channel mute button to hear its output alone. Release both, and all mute settings will be returned to those you had before. You can recall the last solo patch by holding down *shift* whilst pressing *solo in place*.

Use the *channel safe* button when you're recording to prevent solo affecting the multitrack feeds. Monitor and channel solos are independent unless the *solo link* button is pressed. Use this switch for mixdown or live applications if additional instruments are being fed to B mix.

Like the mutes, solos can be made individually safe.

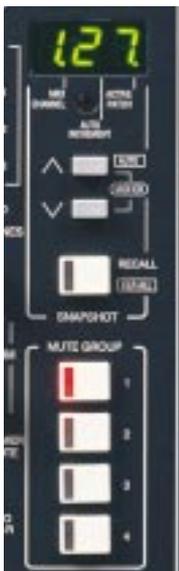
## 128 SNAPSHOTS

Up to 128 scenes or mute patches can be set and stored in the snapshot memory. Any mute scene set on the console can be stored simply at any patch number and then recalled as needed.

You can hand over the mute settings to MIDI control easily by selecting the required channel and pressing the *MIDI* button.

## 4 INDEPENDENT MUTE GROUPS

Four sets of mutes can be stored and quickly recalled using the *mute group* buttons on the master section. When you have the console set up for a take which will need to be recalled later, press *store*, then a *mute group* of your choice.



## MIDI and MMC

GS3000 provides IN, THRU and OUT connections for MIDI control of patches and mutes, and for the MIDI Machine Control buttons placed conveniently at the bottom of the master section.

Dedicated buttons are provided for Play, Record Stop, >> and << with tally leds. Mark and locate functions are provided and the tracking option allows you to hardwire other remotes.

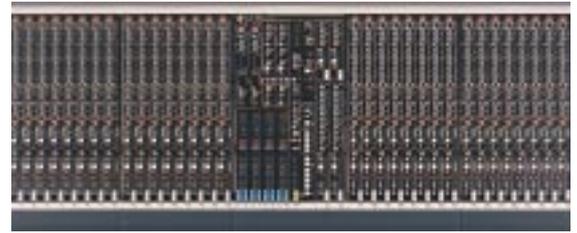
In conjunction with the display panel and associated leds, MIDI programs can be loaded (the console responds automatically to Sys-Ex dump), disabled or dumped. Error messages help trace program problems, soft and hard resets are available and a power up/down memory protects against data loss.

# Specifications

## 2 frame sizes



GS3000-824 24 channel frame.



GS3000-832 32 channel frame.

## performance

### FREQUENCY RESPONSE.

Referred to 1kHz @ +4dBu.

any input to any output: 20Hz to 20kHz +0/-0.5dB

### DISTORTION.

THD+noise @ +14dBu, 1kHz output

Mic in to L-R out, 40 dB gain: 0.006%

Line in to L-R out, 0dB gain 0.006%

### CROSSTALK.

Referred to driven channel @ 1kHz

Adjacent channel: < - 100dB

Fader closed: < - 90dB

Mute on: < - 75dB

Pan pot isolation: < - 72 dB

### NOISE PERFORMANCE.

Measured rms, 22kHz bandwidth

Mic in EIN (150 ohm source): < - 128dB

Line preamp, 0dB gain: < - 93dBu

L-R residual noise: < - 98dBu, 102dB s/n

L-R faders '0', nil routed: < - 90dBu, 94dB s/n

L-R mix noise (16 channels routed): < - 86dBu, 90dB s/n

Group mix noise (24 channels routed): < - 80 dBu,

### CMRR.

Mic in, 40dB gain @ 1kHz: > 80dB

## levels & impedances

### INPUT IMPEDANCES

Mic inputs 2k ohm balanced  
Line inputs 15k ohm balanced  
Tape inputs 22k ohm balanced  
Guitar inputs 470k ohm unbalanced

### OUTPUT IMPEDANCES

Direct outputs 47 ohms unbalanced  
Aux sends 68 ohms impedance balanced  
Group outputs 68 ohms impedance balanced  
Insert points 68 ohms impedance balanced  
Mix outputs 68 ohms impedance balanced

### INPUT LEVELS

Mic input gains 10 to 60dB  
Line input gains - 10 to 40dB  
Tape inputs + 4dBu/ - 10dBV switched  
Valve mic gains 10 to 60dB  
Valve line gains - 10 to 40dB  
Guitar input gains 20 to 50dB  
Stereo returns + 4dBu/ - 10dBV switched  
Stereo input gains - 10 to 20dB

### NOMINAL OUTPUT LEVELS

Direct outputs - 2dBu  
Insert points - 2dBu  
Group outputs + 4dBu/ - 10dBV switched  
Mix outputs + 4dBu  
Aux outputs - 2dBu  
Studio outputs - 2dBu

## dimensions (mm/kg)

	UNPACKED				PACKED			
	WIDTH	DEPTH	HEIGHT	WEIGHT	WIDTH	DEPTH	HEIGHT	WEIGHT
GS3000-824	1186	634	176	29	1300	750	280	38
GS3000-832	1481	634	176	37	1555	750	280	50
Meterbridge M24	1174	56	106	4	1080	130	230	6
Meterbridge M32	1469	56	106	5	1330	130	230	7
RPS12	482	232	90	10	575	270	170	11

## options

**GS3000-M24** meterbridge for 24 channel frame

**GS3000-M32** meterbridge for 32 channel frame.

**RPS12** power supply.



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This product complies with the European  
Electromagnetic Compatibility Directives  
89/336/EEC & 92/31/EEC and the  
European Low Voltage Directives  
73/23/EEC & 93/68/EEC.



**H** A Harman International Company