4 Channel Frequency Conscious Noise Gate

Operation Manual

March 2003

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CONTENTS

Main Features:

- 4 channels of Frequency Conscious Noise Gating
- Variable Hi and Low Pass side chain Filters
- Fully variable Threshold and Release
- Fast and Slow Attack modes
- Range switching between -20dB and -80dB
- Side chain Listen facility
- Stereo linking
- Side chain inserts
- Balanced Inputs-Outputs with +4dBu/10dBV switching

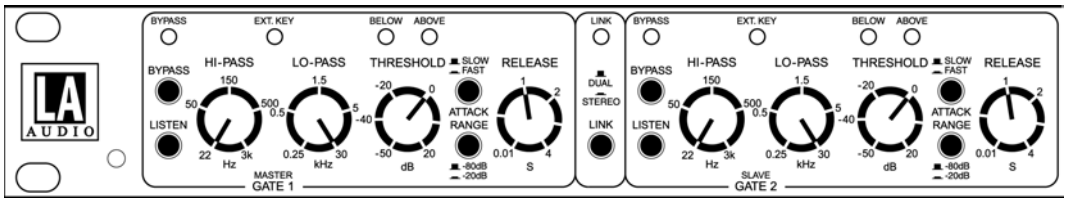
The G400 is a professional 4 channel noise gate that can be operated as 4 separate processors or linked as two independant stereo pairs. In Link mode, Channel 1 and 3 provide Master control and 'rms summing' is used to ensure that signals from both the linked channels operate the gate.

Each channel has fully variable controls for filter Frequency, Threshold and Release. Range is switchable to provide either full muting (-80dBu) or a more subtle level of signal attenuation (-20dBu).

Two Attack modes are available; Fast or Slow and Release is manually adjustable. In-built sidechain 'auto-level-sensing' and Hold circuitry ensure that false triggering and chatter are kept to a minimum. High and Low pass filters are included and can be used for a wide range of frequency conscious gating applications. A LISTEN facility allows the filters to be easily tuned by ear. Each channel also has a sidechain insert with front panel indication when an External Key jack is plugged in.

Led indicators are provided for Above-Below Threshold, Bypass and Link.

All inputs and outputs are electronically balanced and can be switched between +4dBu and -10dBV operating levels.



2.1 **BYPASS** switch

Pressing BYPASS cancels gating by removing the side chain voltage from the voltage controlled amplifier (VCA). The Input-Output and level change circuitry remain in the signal path.

The BYPASS led lights when the compressor is Bypassed.

2.2 **LISTEN** switch

This facility allows the side chain signal to be monitored at the channel output. This is useful for tuning the side chain filters by ear.

2.3 **HI-PASS** control

This control sets the cut off frequency of the high pass filter in the side chain signal path. Side chain signals at frequencies below the cut off frequency are attenuated and so will not operate the gate.

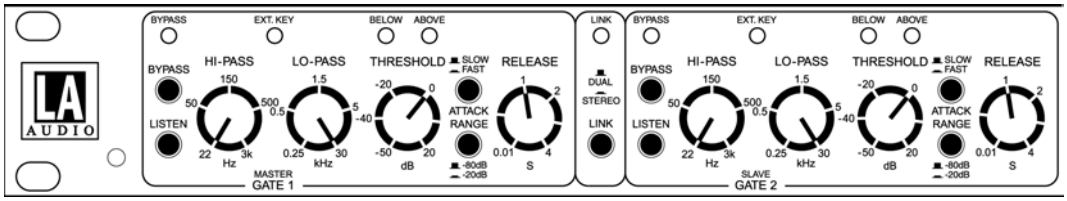
Use this control to prevent low frequency signals, such as a miked up bass drum, opening the gate.

2.4 **LO-PASS** control

This control sets the cut off frequency of the low pass filter in the side chain signal path. Side chain signals at frequencies above the cut off frequency are attenuated and so will not operate the gate.

Use this control to prevent high frequency signals, such as a miked up hi-hat cymbal, opening the gate.

Please note:
The filters are always in the side chain signal path so if not required it is necessary to set the controls to their extreme frequencies to prevent them affecting the side chain signal.



2.5 **EXT. KEY** led

EXT. KEY lights when a jack is plugged into the side chain insert on the rear of the G400.

2.6 **THRESHOLD** control

THRESHOLD sets the reference level at which the gate will open and allow audio through to the output. Control range is -50dBu to +20dB.

The side chain on the G400 has been designed with 'auto-level-sensing' and Hold circuitry to ensure that both fast transient and low frequency signals operate the gate without false triggering and/or chatter. However if the gate repeatedly opens and closes on a particular signal, reducing the THRESHOLD level can often correct this.

2.7 **ABOVE-BELOW** leds

These two leds indicate the relationship between the side chain signal (which is normally the same as the input signal unless the side chain insert is used) and the THRESHOLD setting.

The BELOW led indicates that the signal level is below threshold and the gate is closed. In practise, when the BELOW led lights the audio starts to fade at a rate set by the RELEASE control.

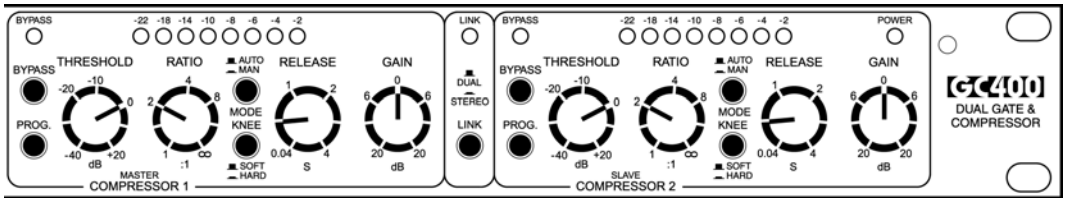
The ABOVE led indicates that signal levels are above threshold and the gate is open. When the gates closes, the ABOVE led starts to fade at a rate set by the RELEASE setting.

2.8 **ATTACK** switch

Two switchable ATTACK rates are available on the G400 -

SLOW provides an attack speed which is suitable for most program material without introducing transient clicks.

FAST is intended for gating percussive instruments or signals with fast attacks transients.



2.9 **RANGE** switch

The RANGE switch determines the amount of signal attenuation that occurs during gating. The G400 provides for full signal muting (-80dB) or a more subtle attenuation (-20dB).

2.10 **RELEASE** control

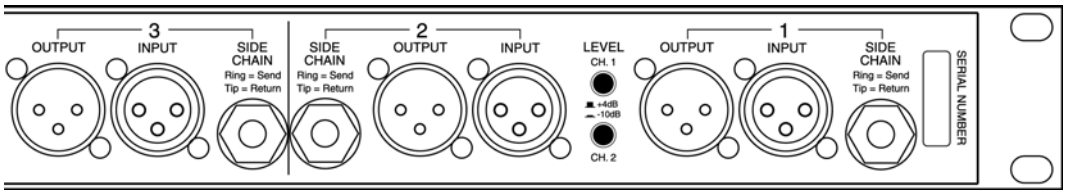
RELEASE adjusts the speed at which the gates closes once the input signal level has fallen below that set by the THRESHOLD control. Control range is 10mS to 4S.

Please note:
With instruments such as bass guitars, short RELEASE times can cause the gate to chatter. If this occurs increase the release time.

2.11 **LINK** switch

Pressing the LINK switch couples channels 1&2 and 3&4 for stereo operation. Channels 1 and 3 become the masters, the controls on channels 2 and 4 are disabled.

The side chain circuitry on the G400 uses true rms summing to ensure that the signals in both the linked channels are used to control the gate.



3.1 SIDECHAIN

The Side chain TRS jack allows connection of an external processor such as a parametric equaliser for more sophisticated frequency conscious gating applications. External key signals are often used for gated-reverb, rhythmic and bass enhancement effects.

This is an unbalanced insert with Ring wired as Send and Tip wired as Return.

Please note:

Plugging a jack into the side chain connector breaks the control signal path which must then be completed by the externally connected equipment.

3.2 INPUT

Electronically balanced Input with pin 2 wired hot (signal +).

Unbalanced operation is possible by joining pin 3 to pin 1 (signal ground) and using pin 2 as signal hot (+).

Please note:

To maintain correct signal levels in un-balanced applications, pin 3 must be joined to pin 1 and not left un-connected.

3.3 OUTPUT

Electronically balanced Output with pin 2 wired hot (signal +).

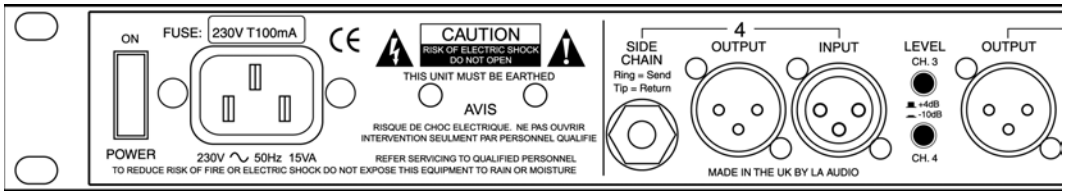
For un-balanced operation pin 3 can be joined to pin 1 i.e. pin 2 = signal hot and pins 1&3 = ground (screen).

Please note:

To maintain correct signal levels in un-balanced applications, pin 3 must be joined to pin 1 and not left un-connected.

3.4 LEVEL

These switches select the input and output operating level for each channel between +4dBu (switch out) and -10dBV (switch in).



The Side Chain insert operates at -2dBu in both +4dBu and -10dBV modes.

3.5 POWER

Mains power switch for G400

3.6 POWER INLET

Standard IEC mains inlet for use with a detachable mains cable.

See Section 3.4 for details of power requirements and fusing.

Please note:

The mains protection fuse is inside the unit, accessed by removing the top cover.

Ensure that the unit is disconnected from the mains supply before attempting to replace the fuse.

4.1 INSPECTION AND UNPACKING

The G400 has been carefully packed at our factory in a carton designed to withstand handling in transit. Should the unit appear to have been damaged in transit, notify your dealer immediately and do not discard any of the packing. The carton should contain -

- The G400
- Power cord - country specific, please check
- Operator Manual (this book)

4.2 OPERATING ENVIRONMENT

The G400 is designed to operate between 0°C and 40°C (32-112°F) with relative humidity no more than 80%. Should the units be installed in an equipment rack, ensure that the ambient temperature conforms to these levels.

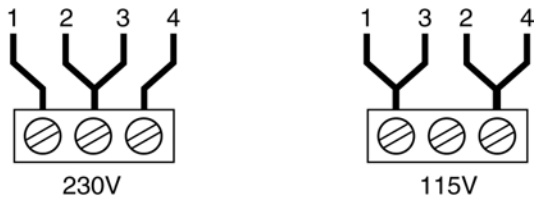
4.3 CE STANDARDS AND THE LOW VOLTAGE DIRECTIVE (LVD)

The G400 has been designed to comply with the latest Electromagnetic Compatibility (EMC) regulations. However we recommend you do not operate the unit close to strong emitters of electromagnetic radiation such as power transformers, motors, mobile telephones or radio transmitters.

The unit should only be connected to a power supply of the type described in 4.4 POWER REQUIREMENTS or as marked on the unit. Disconnect the mains supply before removing any cover.

4.4 POWER REQUIREMENTS

The G400 is factory configured for either 230V 50Hz ac or 115V 60Hz ac mains operation. Please refer to the following diagram which shows the transformer connections for 230V and 115V –



The rating of the rear panel fuse is shown on the cover -

230V	**115V**	
T125mA	T250mA	**All are slow blow type**

Please note:
If the fuse requires changing at any time please ensure the correct type is fitted. An incorrect fuse could cause damage to the unit and may constitute a fire hazard.

The detachable IEC mains lead connections to the appliance are coloured in accordance with the following code:

Green-and-Yellow	**Earth**
Blue	**Neutral**
Brown	**Live**

WARNING: THIS APPLIANCE MUST BE EARTHED

Please note:
A protective earth connection, made by way of the earth conductor in the power cord, is essential for safe operation.

5.0 WARRANTY

Your LA Audio G400 has been manufactured to a high standard using quality components. If correctly installed and operated the unit should give years of problem free operation.

However in the event of a defect in material or workmanship causing failure of the unit within 1 year of the date of original purchase we will agree to repair, or at our discretion replace, any defective item without charge for labour or parts. To receive service under this warranty it is necessary to return the unit to an LA Audio authorised service centre or to the factory with a dated receipt as proof of purchase. After repair the unit will be returned to you free of charge.

Limitations:

This warranty does not cover damage resulting from accident or misuse. The warranty is void unless repairs are carried out by an authorised service centre. The warranty is void if the unit has been modified other than at the manufacturers instruction. The warranty does not cover components which have a limited life, and which are expected to be periodically replaced for optimal performance. We do not warrant that the unit shall operate in any way other than as described in this manual.

6.0 TECHNICAL SPECIFICATIONS

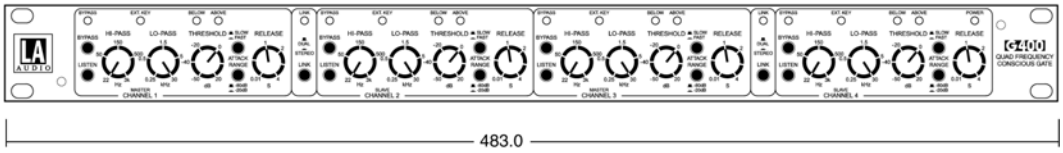
ELECTRICAL

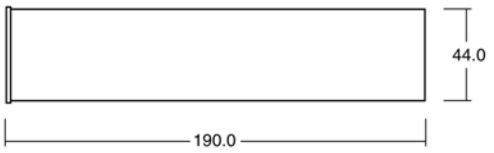
Frequency response:	20Hz to 20kHz (+0, -0.5dB)
Input Impedance:	20k balanced
Maximum Input Level:	+20dBu
Input-Output Level:	+4dBu or -10dBV
Output Impedance:	100R balanced
Max. Output Level:	+20dBu
THD:	< 0.05% (1kHz, +4dBu)
Signal to Noise Ratio:	> 90dB, +4dBu out, 22Hz- 22kHz
Threshold:	-50dB to +20dB
Range:	-80dB or -20dB
Attack:	Fast: 50uS Slow: 1mS
Release:	10ms to 4s - variable
High Pass Filter:	22Hz to 3kHz
Low Pass Filter:	250Hz to 30kHz
Power Requirement:	15VA, 115/230V AC, 50/60Hz

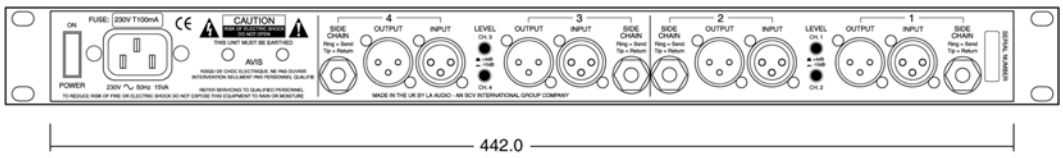
PHYSICAL

Input Connectors:	XLR 3 pin (Pin 2 hot)
Output Connectors:	XLR 3 pin (Pin 2 hot)
Power Connection:	IEC 3 pin socket, Detachable lead
Dimensions (mm):	482 (19") W 164 (6.5") D 44 (1.75") H
Weight:	2.9 kg, 6lbs
Shipping Weight:	3.6kg, 8lbs
Temperature Range:	Operating 0ºC to 50ºC Storage -30ºC to 75ºC

7.0 DIMENSIONS







In keeping with our policy of continuous improvement LA Audio reserves the right to alter specifications without prior notice.

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