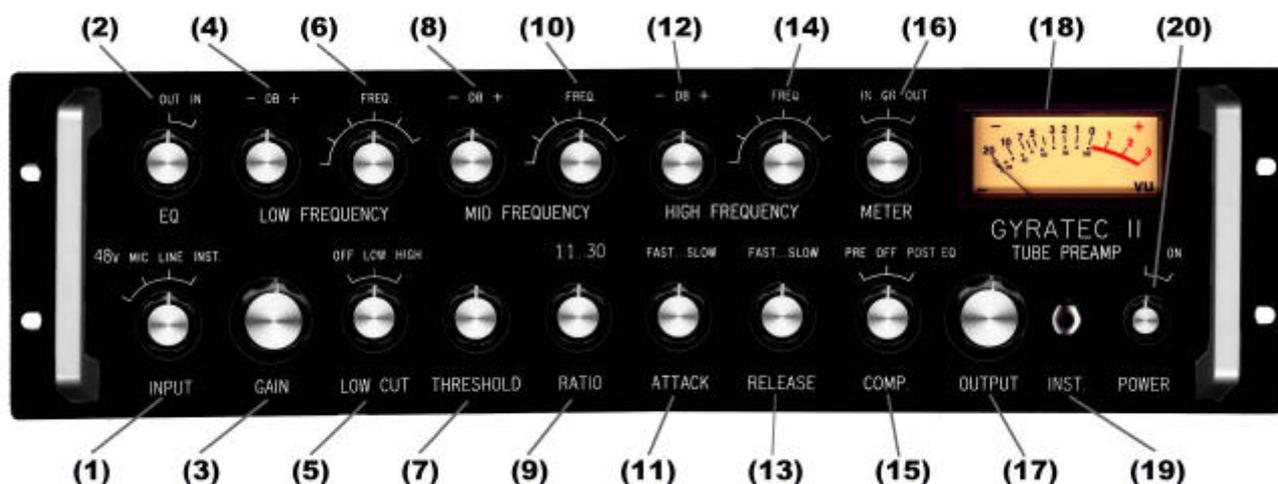


Gyraf Audio Gyratec II Recording Channel



Gyraf Audio Gyratec II

The all-tube Recording channel....

Preliminary user manual, 14. November 2002.

The Gyraf Audio Gyratec II is basically an all-tube recording channel, combining a microphone/line preamp, an equaliser and an optical compressor. Although solid state electronics are used - in the power supply and sidechain - the audio signal is never touched by anything but tubes, transformers and passives. Very different from most "tubed" consumer-type studio gear, and very good for signal integrity.

The signal flow in the G2 is kept simple; all functions are realised with only four double triode tubes - the 5814 military type. This tube can be substituted with standard ECC82 or 12AU7A types, so you don't have to worry about tube availability for the near future.

The input switch (1) selects between "Instrument" (DI for e.g. Bass or Guitar) "Line", "Mic" and "Mic 48V". The input impedance is 1K Ohm for the mic input, 10K Ohm for the Line input, and 1M Ohm for the

Instrument input. Mic and line inputs, as well as the output, are standard XLR, pin 2 hot.

"Mic48V" is selected when - and only when - you use phantom powered condenser microphones.

The Microphone and line inputs are floating and transformer balanced - an interface standard used in most serious audio designs. Observe, that if you attach unbalanced equipment, you have to make sure that the "cold" in- or output (XLR pin3) is connected to ground (XLR pin1).

The Instrument input on the front(19) is an unbalanced, high impedance, standard 1/4" jack, handy for direct recording of bass, keyboards or guitars. (I really like it on bass..)

The gain switch (3) sets the level of the incoming signal in 11 steps. The amount of useable gain is about 62dB (mic in), 50dB (instrument in) and 35dB (line in)

The amplified signal is passed to the selectable Low-cut filter (5) - a soft 6dB filter at either 90Hz or 160 Hz (or off). The low-cut filter is mainly used for reducing proximity effects in directional microphones or - more generic - getting rid of too "boomy" a low end or low frequency noises from insufficient shock-mounting of microphones.

Our Equaliser section is a bypassable (2), three band, variable frequency, symmetrical boost/cut type build around fixed-Q, passive 6dB filters. The filters are optimised for gentle corrections, so you shouldn't expect them to do anything bizarre like telephone-type sound or the like; they're merely for sweetening the tone and flavour of your input signal. Each band has six switchable frequencies (6,10,14), set at spots that we worked quite a bit on getting right.

The low and the high bands are "shelving" type controls, the mid is a "bell" curve. We've purposefully avoided marking with nominal frequencies, as this equaliser behaves somewhat different from standard models, possibly confusing the user. Bear with us on this - using your ears as main tool for EQ setting is a good habit.

Next in line is the Compressor. This is based on the electro-optical principle, that is, the gain reduction element is a light dependent

resistor, controlled by a light that changes in proportion to the audio signal. This is how classics like UA's LA2, LA3 and LA4 - among many others - work, but we use a somewhat faster resistive element, giving a much wider range of control.

The sidechain "sense" input for the compressor is taken either from the input or the output of the equaliser section, in effect making it up to you to decide if you want the compressor before the EQ, or the EQ before the compressor. This is selected with the "Comp" pre/post switch (15), which also doubles as a compressor bypass switch in it's middle position.

The Compressor is fully adjustable, giving you access to Threshold (7) - at what input level the compressor starts working, Ratio (9) - how much it will do once it starts, Attack time (11) - how fast it will attenuate over-threshold signals) and Release time (13) - the amount of time it takes to release the attenuation).

For most real-world recording tasks this compressor works well, but again - like the EQ - you shouldn't expect it to do something overly dramatic. It is designed with signal integrity in mind, not as an destructive effect.

The working of the compressor - actually the gain reduction introduced in this circuit - is monitored on the large VU-meter (18). This is controlled by the Meter switch (16), allowing you to monitor input level, output level, or gain reduction. When set to the "input" position, it gives you an idea of how "hot" you're running the internal circuitry - when reading 0VU, you'll still have about 10dB of headroom before anything nasty happens. If you select "output", you're monitoring the unit's output stage condition. 0VU is +14dBm, still allowing plenty headroom. Note, however, that operating the meter switch is not recommended while recording, as switching clicks can (and will, in the middle of the fantastic take) be audible on the output due to the passive action of the VU-meter.

After the compressor circuit, we reach the output level control(17), setting the level for the final output driver stage, responsible for driving your further line of equipment. The output is - like the input - floating transformer balanced to get rid of potentially problematic hum loops. The output resistance is less than 1K Ohm, so driving all sorts of modern equipment - or even long cable runs - won't be a problem.

In use, when turning on the recording channel, please allow five to ten minutes to heat up the tubes. The sound and the levels will change slightly within this period.

Important notice:

Do not open this unit, as there are really high - potentially lethal - voltages present inside. Refer servicing to qualified personnel.

You can safely remove the four rubber feet if you wish to mount this unit in a tight rack - please save the feet for future use. NOTE: The feet are the ONLY part that can safely be removed. Do not loosen any other screws!

This unit operates from 220-230V AC, consumes about 25W, and the mains fuse is a 315mA slow-blow type.

For further questions, comments and wishes, please contact Gyraf Audio:

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Jakob Erland
Gyraf Audio
14. November 2002.



EU-overensstemmelseserklæring

Undertegnede erklærer herved, at følgende apparat overholder beskyttelseskravene i Rådets direktiv 89/336/EØF om elektromagnetisk kompatibilitet (EMC) samt Lavspændingsdirektivet LVD.

Identifikation af apparat

Kategori: Mikrofonforforstærker
Fabrikat: Gyraf Audio
Model/type: Gyratec II Recording Channel

Navn og adresse på underskriveren:

Jakob Erland
Gyraf Audio
Feedback Recording
Haraldsgade 27
DK8260 Viby J.

Standarder anvendt til grundlag for erklæringen:

EN 55013, EN 55020, EN 61000-3-2, EN 61000-4-2 og EN 60065.

Bemærkninger:

CE-mærket angiver kun overensstemmelse med EMC-direktiv 89/336/EØS samt Lavspændingsdirektivet LVD.

Århus, Juni 2002



Declaration of EU-accordance

I, the undersigned, hereby declare that the following device observes the protectional demands stated in the Council's directive 89/336/EEC about electromagnetic compatibility (EMC) and the Low Voltage Directive (LVD).

Identification of device

Category: Microphone Pre-Amp
Make: Gyraf Audio
Model/type: Gyratec II Recording Channel

Name and address of the undersigned:

Jakob Erland
Gyraf Audio
Feedback Recording
Haraldsgade 27
DK8260 Viby J.

Standards founding this declaration:

EN 55013, EN 55020, EN 61000-3-2, EN 61000-4-2 and EN 60065.

Remarks:

The CE-mark only states accordance with the EMC-directive 89/336/EEC and the Low Voltage Directive, LVD.

Aarhus, June 2002

A handwritten signature in black ink, appearing to read 'Jakob Erland', with a horizontal line underneath.