# Gyraf Audio G14:


**Gyraf Audio Gyratec XIV Parallel-passive stereo tube equalizer.**

Preliminary user manual, 29. March 2005.

The Gyratec 14 is a true tube passive stereo equalizer, based on paralleling multiple tuned inductor/capacitor pairs - followed by a linear tube make-up gain amplifier.

**In use:**

First of all, when turning on the equalizer, allow five to ten minutes to heat up the system. The sound and levels will change slightly within this period.

The features of the Gyratec 14 are as follows:

The inputs are transformer balanced, ca. 5KOhm "bridging" type with the filters off. This impedance is lowered for the bands you select to boost. The input connectors are standard 3-pin XLR jacks, pin2 hot, pin3 cold, and pin1 Gnd.

The "bypass" function switch (6) bypasses the unit for reference. A relay simply disables the unit's output, and shortens the input to the output XLR's. The power indicator light will dim a bit to show that the unit is now bypassed. If you wish to use the unit for straight line gain, but with bypassed equalisation, all eq is fully turned off (hard bypassed) when the mode select switches (2) are in their centre position.

The G14 consists of five bands with selectable frequencies, 'Q', and boost/cut. Frequency is selected by the upper row of switches (1), and boost, bypass, or cut is selected for each individual band by the mode switch (2). The sharpness, 'Q', of each filter is selected by the Q-knob (4) 'sharp' or 'high Q' is at the clock-wise direction - towards the mark 'H'. The 'Level' control (3) controls the amount of applied boost or cut - depending on what function is selected by the mode switch.

The Output trim pot (5) controls the signal level from the filters to the output driver stage and the output. The trim range is ca. +/-3dB, and unity gain is somewhere around 12 O'clock at the output trim pot. The output impedance of this unit is 650 Ohm, and is - like the input - floating transformer balanced.

Note that the way we implement the passive filtering has a number of side effects that should be considered in use:

First of all, the range of maximum boost is limited to some 10-12dB at each band - depending on 'Q' setting - the maximum obtainable cut is larger at extreme settings of the 'level' controls.

Second, there is no 'adding up' of adjacent bands - if you boost two bands at the same (or close) frequency, you won't end up with double the boost/cut range. This is true for all passive equalizer topologies.

Third, because of the parallel-passive architecture, the maximum available 'Q' is somewhat higher at the upper frequencies of each band than at the lower frequencies of that given band, and is sharper in cut mode than in boost mode. This distribution of fil-ter bandwidth gives a very intuitive control of the equalizer, but also somewhat limits the maximum available boost sharpness of the individual filters.

Fourth, the amount of boost obtainable is dependent on the output (source) impedance of the previous unit - the passive filters will load the input at high levels of boost, which limits maximum available boost when driven from high source impedances. This should, however, not affect sound quality - only the amount of control.

**Technical:**

This EQ is based on a parallel-passive equalizer circuit directly following the input transformers. This circuit in turn feeds two E88CC/6922 linear gain output stages, driving the output transformers. No feedback is used in the signal path, and the topology is pure class-A all the way through the unit. Transformers are used for both in- and output interfacing, giving a true floating input impedance of about 5-10Kohm (dependent on EQ boost setting), and an output impedance of ca. 650 Ohm.

The audio path consists of ONLY transformers, tubes, and selected passive components.

Although semiconductors are used in this unit, they're confined to the power supply circuit - and your audio passes through nothing but transformers, tubes and passives. So - as with the rest of our product range - we're talking REAL tube audio here..

**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!

For long tube life, switch off unit when not in use. Don’t leave it on all the time - it won’t suffer from being turned on and off regularly.

This unit operates from 220-230V AC, consumes about 35W, and the mains fuse is a 630mA slow-blow type. For the US-version, marked 'This unit is wired for 115V Mains', the operating voltage is 110-120VAC, and the fuse is a 1AT Slow-blow type.

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

e-mail: users@gyraf.dk

Web: www.gyraf.dk

Telephone: (+45) 5129 2769

Address: Gyraf Audio
Haraldsgade 27
DK-8260 Viby J.
Denmark
Europe

Jakob Erland
Gyraf Audio
29. March 2005.

## 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: | Audio Equalizer |
| Make: | Gyraf Audio |
| Model/type: | Gyratec 14 Parallel-Passive stereo equalizer. |

## 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