

Gyratec XXIII Tilt Equalizer



Gyraf Audio Gyratec XXIII "Ambler" Linear Tilt Equalizer.

Preliminary user manual, 28. May 2015.

The Gyratec 23 Tilt equalizer is a tone control based on a somewhat different concept. Instead of going with standard 6dB/oct "first order" filters with their inherent phase/group delay around cutoff frequency, we approximate a 1dB/oct filter which distributes the (necessary) phase clutter over eight octaves. This results in a very unobtrusive response - even at extreme settings the material will tend to stay in balance and subjectively sound unprocessed.

On top of the tilt tone control, we have added a very-gentle Baxandall tone control with shelving lows and highs and a bell mid, each with three selectable corner frequencies.

The "Tilt" equalizer does not have selectable corner or rotation frequencies, as the linear approach makes this unnecessary.

In use:

First of all, when turning on the Eq, allow the unit to heat up for ten to fifteen minutes - to get the tubes stabilised in their working temperature. The sound and operating levels will change slightly within this period.

The Gyratec 23 works as follows:

The unit is stereo, single set of controls - and off course based on tubes and passives alone. Bypass is full-relay, and it has a gain trim function for easing comparison between direct and processed material.

The inputs are floating transformer balanced, 10K Ohm "bridging" type, meaning that we don't load the output of the previous stage too much. The input and output connectors are standard XLR jacks,

pin 2 hot. Outputs are floating transformer balanced, with a source impedance of less than 500 Ohms.

The main feature of the unit is the "Linear Tilt" knob (1). At centre position it is bypassed, providing linear transfer. Turning the Tilt clockwise will gradually boost higher frequencies while attenuating lower frequencies - and the opposite way when you turn it counterclockwise. At the end of the knob travel you have a maximum of 1dB/oct - which equals to ca. +/-4dB at the outer ends of the spectrum.

Then we have the Baxandall tone control with three boost/cut controls (3), centre detented and bypassed when centred. The available boost/cut is +/-6.5dB on lows, +/-4dB on mids, and +/-2dB on highs. The curves are VERY gentle, a wide ball for the mids and wide shelves for the high/lows. The desired frequency range of the baxandall part is set by the frequency controls (2), each with three selectable frequencies. No, we won't tell you where the frequencies are - but we spent a good deal of time on optimizing both frequencies and boost/cut range for best performance in the "unobtrusive" category..

(4) is your Bypass switch - it takes the entire electronic circuit out of your audio path, and shorts the input XLR's directly to the output XLR's by means of a relay. You don't want eq, you don't get any..

The "Trim" control (5) is a control for fine-tuning the gain of your processed material, making it easier to perform a same-level comparison for judging sonic performance.

Last, the Power switch (6) to turn off the unit when it's not in use. Tubes lasts long, but not forever.

Technical:

This Tilt-Equalizer is based on two closely-matched 6N23P output stages in the feedback chain of a linear cutoff slope filter, and the topology is pure class-A. Lundahl audio transformers with internal electrostatic shielding are used for both in- and output interfacing, giving a true floating input impedance of about 10KOhm, and an output impedance of less than 1KOhm.

This unit was originally intended for use with our analogue tape recorders, which means that the optimum operating levels are around that of +4dBu - and at this point you still have some 14dB up to the point where the unit starts to get tired, which happens around 15Vpp AC output - and then some before it starts sounding bad. This means, however, that you should consider checking your levels if you're running a modern-day DAW, which often comes factory set to extremely-high levels like +24 or +28 for 0dBfsd. Those kinds of levels are aimed at keeping a good safety-margin before running into digital-clip, but at the same time it's common practice (for a good reason) to try getting as close to clip as possible. A good level for use with the G23 (and for most analogue

gear in general) is somewhere around +10dBu to +15dBu analogue for 0dBfsd (full scale digital)

Our audio path consists of ONLY transformers, tubes, and passive components, the power supply circuits are solid-state based though.

The tubes should last for at least a couple of years - and often much longer than that. If and when changing tubes, contact Gyraf Audio for instructions on matching and proper adjustment of the unit.

Important notice:

Do not open this unit, as there are really high - potentially lethal - voltages present inside. Refer servicing to qualified personnel. If trimming the unit, it is of primary importance to use insulated tools, as lethal voltages are present on exposed surfaces related to the trimming procedure. Do NOT try this yourself, unless you're absolutely sure what you're doing.

You can safely remove the four rubber feet if you wish to mount this unit in a tight rack - please save the feet AND screws for future use, do NOT use longer screws than the supplied M3x5. 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 "CE 115VAC", the operating voltage is 110-120VAC, and the fuse is a 630mA Slow-blow ("T") type.

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

e-mail: info@gyraf.dk

Web: www.gyraf.dk

Telephone: +45 5129 2769

Address: Gyraf Audio
Jægergårdsgade 152, 02F
DK-8000 Aarhus C.
Denmark

Jakob Erland
Gyraf Audio
03. April 2015.



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: Audio Equalizer
Fabrikat: Gyraf Audio
Model/type: Gyratec XXIII Tilt Eq

Navn og adresse på underskriveren:

Jakob Erland
Gyraf Audio
Jægergårdsgade 152, 02F
8000 Aarhus C.
Denmark

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, Maj 2015



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 XXIII Linear Tilt Equalizer

Name and address of the undersigned:

Jakob Erland
Gyraf Audio
Jægergårdsgade 152, 02F
8000 Aarhus C.
Denmark

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.

Århus, May 2015