Gyratec XXIII Tilt Equalizer

Gyraf Audio Gyratec 23-S "Ambler" Linear Tilt Equalizer.

Preliminary user manual, 17. May 2018.

The Gyratec 23-S 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.

The -S addition for the G23 designates an added solid-state architecture – with the bypass switch in the “S” position, we bypass the usual transformers and tubes, and wrap the tone control circuits in servo-balanced active circuits instead. This for situations where you need the enhanced cleanliness or huge drive capabilities of solid-state.

In use:

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

The Gyratec 23-S works as follows:

The unit is stereo, single set of controls - based on dual-technology: Either tubes and transformers – or fully solid-state, with servo-balanced in- and output. Bypass is full-relay, and the G23-S has a “TRIM” function for easing comparison between direct and processed material.

The inputs are floating transformer balanced, 10K Ohm "bridging" type, or 24KOhm servo-balanced. 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, or servo-balanced at less than 50 Ohm source impedance.

The main feature of the unit is the "Linear Tilt" knob (1). At centre position it acts bypassed, providing linear transfer through the unit. Turning the Tilt clockwise will gradually boost higher frequencies while attenuating lower frequencies - and the opposite way when you turn it counter-clockwise. 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 audio spectrum.

On top of this, we have the simple Baxandall tone control with three boost/cut controls (3), centre detented and neutral when centered. The available boost/cut amount is +/-6.5dB on lows, +/-2dB on mids, and +/-4dB on highs. The curves are VERY gentle, a wide bell 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 select solid-state (“S”) or tube technology (“IN”)- and when set to “OUT”, 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 ECC88 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. Solid-state part behaves like such should.

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 tube side of 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 to try getting as close to clip as possible for loudnesswarrific reasons. A good level for use with the G23-S (and for most analogue gear in general) is somewhere around +10dBu to +15dBu analogue for 0dBfsd (full scale digital). Note, that the solid-state path of the unit does not really care much about working levels – but listening tests indicate that even this sounds best at levels discussed above.

Our audio path, in "real mode", consists of ONLY transformers, tubes, and passive components. The power supply circuits, and off course the solid-state audio chain when selected, 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

CE

EU-overensstemmelseserklæring

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

Identifikation af apparat

Kategori: Audio Equalizer

Fabrikat: Gyraf Audio

Model/type: Gyratec 23-S Tilt Eq

Navn og adresse på underskriveren:

Jakob Erland
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Jægergårdsgade 154C
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Denmark

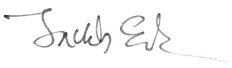
Standarder anvendt til grundlag for erklæringen:

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 2018



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 23-S Tilt Eq

Name and address of the undersigned:

Jakob Erland
Gyraf Audio
Jægergårdsgade 154C
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 2018