



PREQ-73

Vintage style preamplifier and equalizer



INTRODUCTION

Congratulations on choosing the Golden Age Project PREQ-73 microphone preamplifier and equalizer!

The PREQ-73 is a one-channel vintage style microphone-, line- and instrument preamplifier with a two band shelving equalizer offering a smooth and effective sound shaping.

The signal path uses only discrete components like resistors, capacitors and transistors. The line and microphone input and the line output are transformer balanced, using three different transformers, each one optimized for its purpose. The fully floating output can drive a level of at least +26 dBu into a load as low as 600 Ohms.

This is the way audio components were built before integrated circuits became available. The subjective sound quality delivered by vintage equipment is often preferred over the one delivered by modern units, a situation that is even more obvious now when music is recorded with clean sounding digital audio equipment.

The circuit used in the PREQ-73 is similar to the preamp and part of the equalizer section in the classical 1073 module with a corresponding sound character that is warm, punchy, sweet and musical. These classic characteristics have been heard on countless recordings through the years and it is a versatile sound that works very well on most sound sources and in most genres. The essence of this sound is now available at a surprisingly low cost, making it available to nearly everyone.

FEATURES

- Vintage style electronics. No integrated circuits in the signal path.
- Maximum gain on the mic input is 80 dB, enough to handle passive ribbon mics with quiet sound sources.
- Gain range on the line input: -20 to +10 dB.
- Switchable impedance on the mic input, 1200 or 300 Ohm, will change the tone of many mics.
- Switchable phantom power and phase reverse.
- A high-impedance instrument input for sound modules, electric guitar or bass.
- A two band LF (+/-15 dB) and HF (+/-20 dB) shelving equalizer with two selectable frequencies for each band.
- A simple but effective 3-step LED output level meter.
- Output level control for fine gain adjustments and to make it possible to drive the input gain and equalizer stages harder.
- Combo XLR/TRS input jacks and separate output XLR and TRS jacks for flexible connections. Will drive almost any load.
- Insert jack (unbalanced, low level) for inserting effect units in the signal path. It can be located before or after the eq section.
- Tantalum capacitors in the signal path.
- The circuit board is prepared for the Carnhill mic and line input transformers.
- Jumper selectable 600 Ohms output termination.
- External high power power supply to avoid interaction with the audio circuits and transformers.
- A solid build quality that will last many years of normal use.



CIRCUIT DESCRIPTION

The signal first enters an input transformer - one for the mic input and another one for the line input. The primary of the mic input transformer has two windings that are either connected in series or in parallel which results in an input impedance of either 1200 or 300 Ohms. The transformers are followed by two input gain stages.

For gains up to 50 dB, only one of them is being used. For gains above 50 dB, the second gain stage is inserted in the signal path. Both gain stages uses only three transistors each.

After the gain stages, the signal goes to the equalizer section and then to the output level potentiometer and from there to the output stage. This stage again only uses three transistors, the last one in the chain is a hefty 2N3055 power transistor run in class-A mode, driving the output transformer.

All in all, the complete signal chain contains only a maximum of 12 active elements including the three transistors in the eq section. Compare that to the big number of transistors that are usually used in one single integrated circuit!

MODERN VERSUS OLD

It is true that there are some great IC's available today that achieves very low levels of static and dynamic distortion. The simple circuits that the PREQ-73 uses, and even more so the transformers, cannot match the low distortion specifications of modern IC's.

It is the distortion components that imparts a sound character to the audio signal and, if the distortion components are of the right sort, this is a good thing since it makes the recorded voice or instrument sound "better", more musical, more pleasing to the ear. This is one reason why vintage style units are so popular today. Modern, transparent sounding audio circuits is surely not a bad thing, sometimes they are preferred over colored ones. It's all about taste and it depends on the genre. For most modern music styles, color and character is usually a good thing.

USING THE PREQ-73

Using a preamplifier and an equalizer is not rocket science. Here are some points though to help you getting the maximum out of the PREQ-73:

- Connect the cable from the power supply to the AC 24 V connector at the back of the PREQ-73. Power on the unit with the POWER switch at the front.
- Connect your mic and/or line sources to the input XLR/TRS combo jacks at the back. A mic and line source can be connected at the same time.
- Switching between mic and line input is simply done by setting the LINE/MIC switch to one of the line or mic gain positions.
- If you want the smallest amount of coloration, always set the OUTPUT level potentiometer at or close to maximum and adjust the output level with the stepped LINE/MIC gain switch.
- If you want more character, turn the OUTPUT level potentiometer counterclockwise and increase the gain with the LINE/MIC switch. This will drive the input gain and the equalizer stages harder and provoke more character from them.
- For even more character, you can also overdrive the output stage and the output transformer but you will then need a level control after the PREQ-73 in order to reduce the level to the appropriate one. This level control can be a passive damping device (like the Shure A15AS XLR switchable pad) or an input level control in the unit following the PREQ-73.
- Instruments can be connected to the TRS input at the front panel which has an input impedance of about 100 kOhms. Engage the DI switch to select this input. The DI input works in the MIC positions

of the gain switch. Mic and Line sources at the back can remain connected while using the DI input.

- Engage the +48 V phantom power for any mic that needs it. It's a good procedure to always disengage the phantom power and wait for about 10 seconds before unplugging the mic.
- When the LOW-Z switch is engaged, the input impedance of the Mic input drops from 1200 to 300 Ohms. This will change the tone of many mics and it will also change the level slightly.
- The phase switch simply reverses the phase by reversing the wires from the secondary winding of the output transformer. Reversing the phase of the signal is useful on a number of occasions, one example is phase reversing the the lower mic of a snare drum to make it sum in phase with the upper mic.
- There is an unbalanced, low level insert jack located at the back panel where you can insert external effect units that has an operating level of about -18 dBu to -10 dBu. Send is on "tip" and return is on "ring".
- The insert is located before the equalizer section but its possible to place it after the equalizer by moving the "SEND" and "RTRN" cables to the "post" sockets close to the GAIN switch on the main circuit board and also by moving the jumper from "J3" to "J2".

- To activate the eq, engage the EQ switch and select frequencies.
- The output transformer used in the PREQ-73 is made for having an ideal load of about 600 Ohms. The input impedance of most modern units is 10 kOhms or more. The PREQ-73 therefore has a 600 Ohms output termination that can be disconnected by removing a jumper (JP1) located just behind the XLR output jack. This should normally only be made if you are connecting the PREQ-73 to a vintage style unit with a low input impedance. You can also do it to achieve a lift of the upper frequencies which will be the effect of loading the transformer with a higher impedance.
- If the PREQ-73 is placed close to another unit with a power supply, the input transformers can pick up the electromagnetic field that especially mains transformers generate. This would be most noticeable when using the mic input and at high gains levels, like when you use a ribbon or a dynamic mic on a quiet sound source. If you notice a small hum or any other noise in the normal noise floor of the PREQ-73 in a case like this, try moving the PREQ-73 away from other units and the hum will most likely disappear.

WARRANTY

The PREQ-73 is built to last. But as in any electronic device, components can break down.

There is a 1,5 A, fast blow fuse located inside the unit. If the unit dies, please check this fues. If it has blown, replace it with a new one. You can also try with another 24 V AC adaptor if you have one available.

If this doesn't help, or if the unit has another problem, it will need repair and you should then contact the reseller where you bought the unit.

The warranty period is decided by the Distributor for your country. The Distributor will support Golden Age Project resellers and end users with spare parts and repairs.

REGISTRATION

You are welcome to register your unit at our website:
www.goldenageproject.com

I would like to thank you for chosing the PREQ-73!
I hope it will serve you well and that it will help you in making many great sounding recordings.

Yours,
Bo Medin

Create music – Be happy!