PRE-73 MKIV

Vintage Style Pre Amplifier



INTRODUCTION

Congratulations on choosing the Golden Age Project PRE-73 MKIV microphone preamplifier!

The PRE-73 MKIV is a one-channel vintage style microphone-, line- and instrument preamplifier. The signal path uses only discrete components like resistors, capacitors and transistors. No surface mount components are used. The in- and output is transformer balanced, using two different transformers, each one optimized for its purpose. This is the way audio components were built before integrated circuits became available.

Integrated circuits are small and cheap and they are widely used in most modern designs. It is clear though that audio components built with modern technology doesn´t always provide the best perceived sound quality or the type of character that the modern user desires.
On the contrary, the subjective sound quality delivered by vintage equipment is often prefered 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.
This is the reason why so many vintage audio components are cloned and produced again and also why the vintage originals are often very expensive on the second hand market.

The circuit used in the PRE-73 MKIV is similar to the preamp 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. No surface mount components used.
- Maximum gain in MIC mode is 80 dB, enough to handle passive ribbon mics with quiet sound sources.
- GAIN switch range 20 – 80 dB. GAIN/LINE mode switch, gain is reduced by 30 dB in LINE mode.
- Selectable two position high frequency AIR boost eq, 3 or 6 dB @ 30 kHz.
- Selectable 6 dB/octave two frequency high pass filter at around 40 (HP1) and 170 Hz (HP2).
- Tantalum capacitors in the signal path.
- Switchable impedance in MIC mode, 1200 or 300 Ohms, will change the tone of most mics. The input impedance in LINE mode is 10 kohm.
- Switchable phantom power and absolute phase.
- A high-impedance instrument input for any sound module, electric guitar or bass.
- A simple but effective 4-step LED output level meter.
- The output level control makes it possible to make fine gain adjustments and also to overload the main gain stage(s) for more character and then lower the signal to a suitable level before the output stage. A -14 dB output pad is useful for overdriving the output stage and output transformer.
- Combo XLR/TRS input jack and separate output XLR and TRS jacks for flexible connections.
- Insert jack for inserting EQ´s and other units.
- Selectable 600 ohm output termination.
- The pcb is prepared for the Carnhill input transformer.
- External 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 the input transformer. The primary of the transformer has two windings that are either connected in series or in parallell which results in an input impedance of either 1200 Ohms or 300 Ohms in MIC mode. A resistive balanced -30dB pad is inserted before the transformer in LINE mode.

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

The signal then goes to the insert jack and from there to the output level potentiometer and then 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.

So, all in all, the complete signal chain only contains a maximum of nine active elements. 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 PRE-73 MKIV 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 type, 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.
This is not to suggest that modern, transparent sounding audio circuits is a bad thing, sometimes they are prefered over colored ones. It´s all about taste and it depends on the genre. For most modern music styles, color and character is definitely a good thing.

And doesn´t it feel good to use audio components built according to the old, minimalistic approach where one can follow the signal from one discrete component to another?

USING THE PRE-73 MKIV

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

- Connect the cable from the power supply to the AC 24V connector at the back of the PRE-73 MKIV. Power on the unit with the POWER switch on the front panel.

- Connect your Mic or Line input source to the input XLR/TRS combo jack on the back panel.

- Select MIC or LINE mode by the MIC/LINE switch.

- Engage one of the positions of the High Pass filter if you want to roll off the lower frequency range. Set the switch in the center position to remove the high pass filter from the signal path.

- Engage one of the two positions of the AIR eq boost if you want to add some level in the upper frequency range. The center of the boost is at around 30 kHz. The switch center position = OFF.

- 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 GAIN switch.

- If you want more character, turn the OUTPUT level potentiometer counterclock-wise and increase the gain with the GAIN switch. This will drive the input gain stage(s) harder and provoke more character from them.

- You can also overdrive the output stage and the output transformer for even more character and engage the -14dB PAD in order to reduce the level to the appropiate one and/or by using the input level control in the unit following the PRE-73 MkIV.

The standard operating level of the PRE-73 MKIV is +4 dBu, the output level into a 600 ohm load will be about 1,23V when the "0" VU LED is lit.

- Instruments can be connected to the TRS input at the front which has an input impedance of about 100 kohm. Press the DI switch to engage this input. A source at the back can remain connected.

- Engage the +48V phantom power for any mic that needs it. It is 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 input in MIC mode drops from 1200 Ohms to 300 Ohms. This will change the tone of most mics and will give you one more sound-shaping option. It also increases the level, which is normal.

- 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 Insert jack located at the back panel where you can insert equalizers and other external effect units that has an operating level of about -10 dbu to -18dBu.
Send is on "tip" and return on "ring".

- The output transformer used in the PRE-73 MKIV is made for having an ideal load of about 600 ohm. The input impedance of most modern units is 10 kohm or more. The PRE-73 MKIV therefore has a 600 ohm output termination resistor that is engaged by the jumper (JP1) located just behind the XLR output jack. The termination reistor will lower the output level slightly and make the frequency response flatter in the upper range, it will also roll off the upper frequency range earlier, Remove the jumper if the PRE-73 MKIV feed a unit with a 600 ohm imput impedance of if you want to add som level in the upper range,

WARRANTY

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

There is a 1,0A, slow 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 24V 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 repairs and spare parts.

REGISTRATION

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

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

Bo Medin

Vintage character for modern ideas!