

THÖRESS

Full Function Integrated "Super" Preamplifier



INSTRUCTION MANUAL

Thank you for purchasing the THÖRESS Full Function "Super" Preamplifier. We believe our versatile preamplifier to offer the highest possible sonic performance from both the line and the phono section while preserving a state-of-the-art signal-to-noise ratio. It is a reference device which will easily measure up to the expectations of even the most critical and experienced music enthusiast or professional user. Please read the following explanations and instructions carefully to get the most out of your preamplifier.

PHONO INPUTS AND VERSIONS

The "Super" is available in 3 Version differing only in the circuitry of the phono section to suit particular types of cartridges in terms of input sensitivity (gain) and cartridge load. Each version provides 3 phono inputs P1, P2 and P3 selectable with the source dial on the faceplate. Please note, that detailed information concerning cartridges and vinyl reproduction in general may be found in the manual of our Phono Enhancer. The Versions are as follows:

Version 1:

This version offers exceptionally high phono stage gain and customized cartridge loading on P1, P2 and P3 to make these inputs suitable for low-output, low internal resistance MC cartridges. Cartridge loading is achieved by means of standard axial lead resistors soldered to tags adjacent to the phono jacks. These load values are factory preset to 100 Ohms, a value that is suitable for most low-output MC cartridges. Other resistor values can be preset on request, and these values can be changed by the user whenever it is required.

The cartridge load values preset on the high-gain MC phono inputs P1, P2 and P3 of version 1 are printed on the rim of the rear panel for reference.

On these phono inputs any dual-coil low-output dedicated mono MC cartridge can be used without restriction, the Audio Technica AT33-Mono, the Lyra Dorian Mono or Lyra Helikon Mono and the excellent Dynavector DV-1s-Mono being examples of such high grade dedicated dual-coil mono cartridges (all of which are omniflexible).

It is possible to mix stereophonic and dual-coil dedicated mono MC cartridges on any of the high-gain MC phono inputs of version 1 without further adaptation.

However, if a single-coil low-output (dedicated mono) MC cartridge is to be used on these (stereophonic) phono inputs and it is intended for dual-speaker-mono listening, precautions must be taken to "double" the mono signal in such way as to avoid hum. Please see the relevant chapter below for more details on using such cartridges. Examples of current production single-coil low-output MC cartridges are the dedicated mono cartridges made in Japan by Miyajima Lab, all models of which employ monoflexible styluses. A monoflexible stylus has zero vertical compliance and is therefore suitable for tracking of mono grooves only. If a cartridge with monoflexible stylus is accidentally used on a stereophonic record it will instantly destroy its grooves as stereo grooves are modulated laterally and vertically.

Be warned - monoflexible (mono) cartridges can seriously harm stereo grooves !

It should be pointed out, that any omniflexible dedicated (microgroove) mono cartridge is able to read out stereo grooves without harming the grooves and converts the separated signals from the two channels (coded into one single groove) back into a consistent mono signal. Interestingly, the "monophonized" version of a stereophonic record obtained by tracking with a high grade omniflexible mono cartridge can sound very appealing. On the other hand, any stereophonic cartridge is able to read out both early and second-generation monophonic microgrooves faithfully and will output two identical signals on each of its channels. Please recal, that more useful information concerning cartridges and vinyl reproduction in general may be found in the manual of our Phono Enhancer downloadable from our website.

Version 2:

Here the inputs P1, P2 and P3 are suitable for medium-output MC or MI cartridges (medium phono stage gain). Each input is loaded at 47K.

Version 3:

In this version the phono circuitry is designed to make P1, P2 and P3 suitable for ordinary "loud" MM or MI cartridges (low phono stage gain) and accordingly are loaded with 47K. Of course, low-output (low internal resistance) MC cartridges may be used on any low gain phono input of this version with the aid of an external step-up transformer.

Please note that, it is NOT possible to mix different kinds of cartridges (such as MC and MM) on the inputs P1, P2 and P3 (of any version) as they all feed the same fixed phono circuit optimized for one particular type of phono cartridge regarding input sensitivity (gain) and load requirements.

LINE INPUTS

Besides the phono inputs P1, P2 and P3 our preamplifier offers two inputs CD1 and CD2 for high-output line level sources such as CD/DVD players or sound cards. One additional line input HP for classical low-output line level sources such as a tape recorder or a phono stage is provided. If our Full Function Preamplifier is to be used for line amplification of our Parametric Phono Equalizer (the Enhancer) or another external phono device, it is advisable to use the input labelled HP (rather than CD1 or CD2) for optimal sonic results, especially when the device is based on a tube design.

OUTPUTS

To maximize versatility, the preamp includes two paralleled main outputs. Importantly, the output resistance at the main outputs is low enough to drive long interconnect cables and power amplifiers with an input impedance as low as 10,000 ohms without compromising sound quality. It is thus possible to simultaneously drive a power amplifier AND the solid state power amplifier of an “active” subwoofer without further adaptation. The paralleled main outputs may also serve for proper signal doubling if a single-coil (mono) cartridge is used on one of the phono inputs for dual-speaker mono listening in the way described in the relevant chapter.

Moreover, a monitor output Q for the chosen source is provided. As the output signal of the internal phono section will appear at the Q-output as soon as one of the phono inputs P1, P2 or P3 has been switched active, this output allows the internal phono section of our preamplifier to be used with high impedance line inputs of other preamplifiers. Again, the output resistance at Q is low enough to drive long interconnect cables without compromising sound quality. However, if the input resistances of the line input is considerably lower than 100K it may be necessary to increase the value of the coupling capacitors at the output of the phono section, if bass response at the very low end of the audio band is not to be compromised. At this point only a modest capacitor value has been employed for coupling in order to obtain a certain amount of attenuation of any subsonic artifacts present in the phono signal, as it may occur with warped records.

If the phono section of the "Super" is to be used with an external line preamplifier via the Q output - it is advisable to use a high impedance line input for optimal sonic results.

USING SINGLE-COIL (MONO) CARTRIDGES ON STEREOGRAPHIC EQUIPMENT

When both inputs of a stereophonic phono preamplifier are wired to a single-coil generator cartridge in attempt to create signal doubling to allow for dual-speaker mono reproduction it is impossible to avoid a conductive connection between "left ground" and "right ground" of the (non-symmetric) phono circuit and, as a result, unwanted ground loops are formed.

Single-coil (mono) cartridges will cause residual hum due to ground loops when they are wired to feed both inputs of a stereophonic preamplifier (with non-symmetric circuitry) in an attempt to double the mono signal at the phono input for dual-speaker-mono listening !

To overcome this problem the signal should be doubled at the point of output rather than attempting to accomplish this earlier in the signal path. The paralleled main output jacks can be used to conveniently achieve this aim in the following manner. Only the right channel of the phono section should be fed by the single-coil generator via a customized monophonic tonearm cable, whilst the corresponding left input should be short-circuited directly at the jack with the help of a RCA plug internally soldered to suit this purpose. If

a monophonic tonearm cable is not at hand, a conventional stereophonic tonearm cable can be used equally well (with both plugs inserted into the respective jacks), in which case shorting the inactive left input can be conveniently accomplished at the very end of the left channel lead of the tonearm cable by shorting the "left hot" and "left ground" pin of the headshell. If the tonearm is equipped with free leads, the desired conductive connection can be easily formed by taping the lead ends of the respective tonearm leads firmly together. After these adaptations required to create dedicated single-coil cartridge input, signal doubling can be obtained at the output by connecting both power amps to the right channel main output by using the respective paralleled pair of jacks.

Note, a doubled version of the right channel rather than a proper stereophonic signal will be reproduced by the system in dual-speaker-mono mode if a stereophonic source is (accidentally) switched active.

ABSOLUTE PHASE OF LINE-OUT SIGNAL

Line amplification in the “Super” is performed by a unique single-stage, zero-feedback circuit employing one 12SN7GT tube per channel. This topology has several technical and sonic advantages over a more common multistage circuitry, and yet the line amplifier is still capable of driving long interconnect cables and/or power amplifiers having an input-impedance as low as 10,000 ohms without compromising sound quality. As a side-effect of this puristic concept, the output signal of the line amplifier is 180 degrees out of phase relative to the input signal. Thus, for a correct absolute phase in the system, the speakers should be connected to the respective power amplifiers with reversed red-black-polarity. That is, connect the red binding post of the amplifier to the black binding post of the speaker, and vice versa. Here we assume that all other components in the setup process the signal without phase shift and phono cartridges are wired for correct polarity.

For correct overall phase in a setup with the THÖRESS Full Function Preamplifier, the speakers should be connected to the power amplifiers with reversed red-black-polarity.

Note, that in our Full Function Preamplifier the volume of each channel is controlled separately via high-grade rotary potentiometers (custom made to order by ALPS in Japan) and these parts are carefully matched, to preserve precise channel balance with respect to the rotation angle (and thus to the scale printed on the faceplate).

INPUT SENSITIVITY AND THE PREAMPLIFIER’S IDLE NOISE

The noise performance of the line section of our preamplifier is such that no audible idle noise will be present in the setup as long as the power amplifier and the speakers are suitably matched with respect to input sensitivity and speaker efficiency. We guarantee that line amplifier idle noise will remain within inaudible limits when using speakers up to 100dB/W/m efficiency with each of our power amplifier models. But line amplifier idle noise will unavoidably become audible in cases where the power sensitivity of the power amplifiers are high (solid state amps) and/or the speakers are exceptionally

efficient (large horn speakers). A worst-case mismatch scenario is to be expected if both of these conditions were simultaneously met.

In order to keep the line amplifier idle noise within inaudible limits the power amplifiers and the speakers need to be suitably matched with respect to input sensitivity and speaker efficiency.

AMPLIFIER PLACEMENT AND HUM

The phono section within the “Super” (located in the right-hand side of the case) amplifies the MC signal actively (employing one PCC88 and two 12SN7GT tubes), without the aid of step-up transformers, and is consequently an extremely sensitive device.

Thanks to an outstanding circuit topology, amplification of the phono signal in our Full Function Preamp is purely active without the aid of step-up transformers.

Much care has been taken in arranging each aspect of the internal construction, including wiring techniques, to achieve an extraordinary signal-to-noise ratio, even though the power transformer is built-in. However, stray electro-magnetic fields produced by the power transformers of other electronic devices positioned in the vicinity of the preamplifier may introduce hum into the phono section of the "Super".

Power transformers of other electronic devices positioned in the vicinity of the preamplifier can seriously deteriorate the signal-to-noise performance by introducing hum into the phono section. Consequently, the preamplifier needs very considerate placement for optimal performance !

TURNTABLE DECOUPLING AND LOW-END CUT-OFF FREQUENCY

Coupling capacitor values between the amplifier stages of our Full Function Preamplifier have been chosen to give a very low overall cut-off frequency so as not to compromise frequency and phase response at the low end of the audio band, and yet to provide a certain amount of attenuation of subsonic artifacts. Considering the puristic concept of the preamplifier circuitry, the use of (steep) active subsonic filters cannot be tolerated. The same holds for our power amplifiers, where our ultra-high quality output transformers offer cut-off frequencies as low as 5 Hz or even lower. Since the preamplifier was designed to accommodate power amplifiers with input impedances as low as 10,000 ohms, we have employed high-value coupling capacitors (several microfarads) in the line output circuit, giving a very low cut-off frequency when power amplifiers with higher input impedances (i.e. tube amplifiers) are used. Therefore, much care is needed to prevent subsonic artifacts from entering the audio signal when a turntable is part of the setup. Speakers of the vented type (“bass reflex”) are exceptionally critical in this regard, as power amplifiers lose “control” over such speakers at frequencies lower than the port frequency, allowing them to enter into “subsonic feedback resonance” with the turntable if the later device is poorly decoupled from the

rack and/or there is a mismatch between the tonearm and the phono cartridge (i.e. if the resonant frequency of this combination is too low). In extreme cases, even the power amplifier itself may enter into subsonic resonance if it is poorly designed. If such effects are observed in a setup, lowering the coupling capacitor value in the line section of the preamplifier may be necessary to help increasing the attenuation of subsonic frequencies. To accomplish this modification, please contact your distributor or local dealer.

Subsonic artifacts may enter the signal when the turntable is poorly decoupled from the rack and/or the tonearm and the phono cartridge are not suitably matched.

SETUP

To set up the Preamplifier, proceed as follows:

Do not connect the amplifier to the mains until the following steps have been taken.

1. Remove the top plate from the amplifier case and place all tubes into their sockets very carefully. Note, the tube heaters of the tubes are connected in series and fed from a constant current source. Thus, none of the tubes will glow/operate unless all tubes have been installed into their respective sockets to form a “closed chain.”

Never switch on the preamplifier unless all tubes have been placed into their sockets. Never pull a tube out of its socket while the preamplifier is switched on.

Take care to tighten the screws properly when closing the amplifier case, so as to ensure a conductive connection of the plate to the case, as:

Improper grounding of the top (or bottom) plate may result in hum !

2. Switch off all amplifiers and other powered devices which are part of the setup.
3. Make sure that the power switch of the preamplifier is in the "Aus" (off) position and both volume controls are set to zero.
4. Now bring the preamp into its final position (further advice concerning preamplifier placement has been given earlier) and connect all the cartridges you want to use to suitable phono inputs via the respective tonearm cables. Do not forget to connect the ground leads of each tonearm cable to the ground terminal adjacent to the phono jacks. Next connect all other line level sources to be used to suitable line inputs. See the relevant chapter for further details on the line inputs.

If our Full Function Preamplifier is to be used for line amplification of our Parametric Phono Equalizer or another external phono device, it is advised to use the HP-input for optimal sonic results !

5. Connect one pair of the main output jacks to the inputs of the power amplifiers. Use the second pair of main output jacks to connect the preamp to an eventual active subwoofer, if desired. Please note that proper signal doubling for dual-speaker mono listening can be achieved at the output in the way described in the relevant chapter if a single-coil (mono) cartridge is to be used on one of the phono inputs.

6. Now the preamp can be connected to the mains and switched on.
7. Finally the power amp(s) can be switched on, respecting a delay of about one minute.
8. Select the desired tone source with the source dial, adjust the volume (and balance) for convenient loudness and enjoy the music.

Always switch on the preamplifiers first, then switch on the power amp(s) with a delay of not less than one minute !

Never switch the preamplifiers on or off when the power amplifier is powered on.

When powering off the system, always switch off the power amplifier(s) first, then switch off the preamplifier(s) observing a delay of not less than 30 seconds.

TUBE QUALITY AND SIGNAL-TO-NOISE RATIO

The THÖRESS preamplifier is equipped with “new old stock” tubes carefully tested to meet tight specifications, and hand-picked for low microphony and low noise. The use of tubes with questionable parameters or of poor quality will lead to inferior sound quality and/or a decreased signal-to-noise ratio (i.e. increased pink-noise and higher sensitivity to microphony). In extreme cases, damage within the circuit may occur ! It is therefore strongly advisable to use only the carefully tested tubes supplied by the manufacturer.

The use of tubes of questionable quality may lead to an inferior signal-to-noise ratio and degraded sound quality.

When the amplifier is to be equipped with “fresh” tubes, proceed as follows:

1. Carefully clean the tube pins with a dry brush.
 2. Spray a few drops of highly viscous oil (such as Ballistol) on a cotton-tip.
 3. Then use the tip to apply a thin oil film onto the contact pins.
- Tubes handled in this way will move in and out of the sockets more easily and will help to increase the life expectancy of the tube sockets.

Never switch on the preamplifier until all tubes have been placed into their sockets.

Never pull a tube out of its socket while the preamplifier is switched on.

Never pull a tube out of its socket while it is still hot.

Always remove all tubes from their sockets and put them in their original transport box before shipping or transporting the amplifier.

FUSE

Our Full Function Preamplifier draws a current of 0.6/0.3 amperes from the 120/230 Volt mains. It is equipped with exactly one fuse rated at 1/0.5/ Ampere, located in the fuse-

case adjacent to the power inlet. Occasionally, the fuse may blow at the moment the amplifier is switched on. This is due to the current spike drawn by the power transformer. Should this problem arise more regularly it may be advisable to use a fuse with slightly higher current rating. If fuses with larger current ratings still blow regularly, the amplifier should be returned to the factory for inspection.

A NOTE ON EFFECTIVE RECORD CLEANING

At the THÖRESS factory we clean records by letting them rotate (at 1 rpm) in the tank of an industrial grade ultrasonic cleaner filled with demineralized water and a few drops of concentrated dish cleaning liquid for at least half an hour. For best results it is advisable to use a cleaner with an integrated heater programmed for 45 degrees Celsius. After this procedure, the records are vacuumed on a conventional record cleaning machine such as the Nitty Gritty. The gifted DIY hobbyist will be able to build the device needed for rotating (up to 3) records through the cleaner bath with the aid of a barbecue motor. Our cleaning method will be found far superior to any other conventional cleaning method. Any residual groove noise still experienced with records treated in this way will be due to imperfections of the grooves and not to groove dirt. Do not hesitate to email us if you require more details regarding this cleaning method.



THÖRESS...

*A Tribute to Professional Equipment from
the Golden Age of the Electronic Tube !*

