THÖRESS

Dual Function Amplifier

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"DFAmp"

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INSTRUCTION MANUAL

Thank you for purchasing the THÖRESS Dual Function Amplifier (DFAmp)!

The DFAmp represents an ultimate implementation of a line control pre-amplifier and a headphone driving amplifier. Both functions are performed by the same minimalist vacuum tube circuit with very low output impedance. The amplifier is built with meticulous hand construction using our proven point-to-point hard wiring techniques. Much care has been taken in arranging each aspect of the internal construction to ensure low noise performance, ease of service and the highest reliability for many years to come. Please read the following explanations and instructions carefully to get the most out of your amplifier.

GT SELECTOR

The DFAmp allows for subtle tonal manipulations via four on-the-fly selectable tone control presets (timbre registers) on two different gain levels implemented by means of a 6-position rotary switch which we call GT Selector (EMPFINDLICHKEIT & KLANG, G.AIN and T.ONE, GT). Two positions of the GT selector are assigned with neutral tonality (flat frequency response). The mapping between selector positions, gain and sound effects is described by the chart below.

pos1: (-)6dB gain, bass boost style-3 and treble boost > B(+++)/TR(++).
pos2: (-)6dB gain, treble boost > B0/TR(+).
pos3: (-)6dB gain, NEUTRAL > B0/TR0.
pos4: full gain, bass boost style-2 > B(++)TR0.
pos5: full gain, bass boost style-1 > B(+)/TR0.
pos6: full gain, NEUTRAL > B0/TR0.

Notably, the timbre registers act in a much more subtle way than common bass-and-treble tone control facilities and do not rely on clumsy and sound degrading conventional tone control circuitry. Each register is realized by interposing solely one

additional capacitor (per register and channel) to the neutral mode circuit!

The timbre registers of the DFAmp are implemented without the aid of conventional clumsy and sound degrading tone control circuitry!

The timbre registers are useful for restoring tonal imperfections of the listening program (often given by a lack of extension on one or both ends of the audio band) and for equalizing the response of individual headphones by adding bass and/or treble extension to a given component. The bass + treble boost register assigned with pos1 of the TG selector can also be used for counteracting the so called loudness effect (weaker perception of bass and treble frequencies at lower loudness). In practice, a combination of all three equalizing purposes will likely be simultaneously applicable.

Use the 4 timbre registers (GT selector pos1/2/4/5) for counteracting tonal imperfections of the listening program and for equalizing the response of headphones!

The boosting introduced by the timbre registers is obtained by attenuating the mid band gain of the amplifier with respect to the gain at upper or lower frequencies of the audio band. Thus, the volume needs to get (slightly) adapted after the GT selector has been moved in between pos1/2/3 in order to preserve the effective listening loudness of the foregoing sound image. The remarks hold for movements in between pos4/5/6.

The impact of the timbre registers is to a certain degree dependent on the volume control setting: the higher the angle of rotation the more pronounced the sound effect (whereas the effect declines towards the end of the rotational range). Hence the user can tune the impact of the timbre registers to his requirements by connecting the program source to inputs with higher or lower gain characteristic (see below) and/or by choosing a higher order lower gain on the power amplifier (providing this component allows for gain adjustment).

INPUTS

The DFAmp comprises 6 line level inputs (2x6 RCA jacks) divided in 3 groups with different gain and input impedance characteristics as described below.

High Gain on Inputs 1/2/3

The gain on inputs 1, 2 and 3 is 26dB (20-times) and 20dB (10-times) with GT selector in pos4/5/6 and pos1/2/3 respectively. These inputs offer a comparatively high input impedance of 80.000 ohms and are suitable for classic analogue program sources such as phono preamplifiers, tuners or tape machines.

Medium Gain on Inputs 4/5

Inputs 4 and 5 are appropriate for medium output program sources such as CD/DVD players, streamers or DACs, offering 18dB gain (8-times) 12dB (4-times) with GT

selector in pos4/5/6 and pos1/2/3 respectively. The input impedance on these inputs is 30.000 ohms.

Low Gain on Input 6

Input 6 (input impedance 30.000 ohms) is assigned with an exceptionally low gain of 10dB (3-times) and 4dB (1.5-times) with GT selector in pos4/5/6 and pos1/2/3 respectively. This input is reserved for sources with exceptionally high output characteristic as they are found on some CD players and DAC-s with vacuum tube output circuitry. This input can also be used for enhancing the impact of the timbre registers as described in the section GT SELECTOR.

Summarizing, the gain pattern on the inputs is

(20, 20, 20; 12, 12; 4)dB and (26, 26, 26; 18, 18; 10)dB

on standard units with GT selector in pos1/2/3 and pos4/5/6 respectively.

OUTPUTS

The L+R outputs of the circuit are simultaneously connected to 2x3 RCA jacks on the rear panel and a frontal 3-step toggle switch which feeds the two adjacent headphone outputs KH1 and KH2 (2x6.35mm jack sockets). The master outputs ***are connected to the circuit permanently whereas the*** headphone outputs can be disengaged by setting the toggle switch to the middle position.

Use the toggle selector to activate or disengage the headphone outputs,
(left, middle, right) ---> (KH1 on, KH2 off . KH1+KH2 off . KH1 off , KH2 on)!

Do not activate a headphone output/headphone during the warming-up phase of the amplifier!

Do not switch the DFAmp on or off while a headphone is connected, and the respective output is switched active!

Always disengage the headphone outputs (toggle selector in middle position) before connecting or disconnecting a headphone unit!

Do not forget to switch off the power amplifier (active loudspeaker, sub-woofer) before using the DFAmp in headphone driving mode!

Always make sure that the headphone outputs are disengaged (toggle selector in middle position) before using the DFAmp in line mode (loudspeaker playback), even when no headphone unit is connected!

The circuit of the DFAmp consists of a (phase-inverting) triode gain stage (12J5GT or 6J5GT tube) followed by a (phase-neutral) unity-gain current buffer (12GN7 power tube operated at high idle current). As a result of this purist concept the output signal is phase-inverted (shifted by 180 degrees) relative to input signal. Users who make a point of a formally correct over-all signal phase can apply a simple corrective

(in case it is known that all other components of the system offer phase neutral operation).

To ensure a formally correct over-all phase of the signal in a setup including the DFAmp the loudspeakers must be connected to the power amplifier with reversed polarity (red binding post of the amplifier connected to the black speaker terminal)!

HEADPHONES

Listening to recorded music through headphones is not merely an emergency substitute for loudspeaker playback but can be a thrilling and enjoyable listening experience in its own right. There are remarkable differences between the two listening scenarios worth a closer consideration...

At first, in case of loudspeaker playback, the acoustical property of the listening environment characterized by the trinity of reverberation behavior, room mode patterns (both of which phenomena are related to sound REFLECTIONS at the room boundaries) and grade of diffusion has a strong influence on the over-all sonic outcome. Room mode patterns are specific areas in the auditory, where the sound power distribution peaks or dips thanks to standing waves between pairs of room boundaries, particularly opposite walls (one distinguishes between axial, tangential and oblique modes). Room modes are strongly frequency dependent and especially relevant and critical at low audio frequencies where the wavelength of the sound waves approach the magnitude of the room dimensions (below 330Hz, corresponding to a wavelength of about 1m). Some rooms have less critical mode patterns than others but the occurrence of room modes as such cannot be avoided or overcome (unless the room is an acoustically dead so called anechoic chamber). Consequently, the position of the loudspeakers and the listening spot (the stereophonic triangle) are critical setup parameters which need to be carefully chosen and finely tuned in order to obtain optimal sonic results in a given auditory. Detecting an optimal stereophonic triangle is a matter of playing out one acoustical detriment for another and always comes down to a compromise between ground tone and sub-bass response at the listening spot. Fortunately, at least the reverberation and diffusion properties of the auditory can be controlled to any desired degree by installing appropriate absorber and diffusor elements (the larger the auditory the more elaborate provisions are needed for impactful acoustical tuning). Proper acoustical tuning inevitably goes along with a sacrifice of space and more or less invasive interventions in the interior of the auditory (a suspended acoustical ceiling being the least obtrusive yet still highly effective tuning option).
By contrast, the transducer capsules of headphones couple directly to the ear drum of the listener. So the signal does not suffer any haze induced by the acoustical imperfections of an auditory, in this case. As a result, high grade closed back headphones are capable of phenomenal bass response which can hardly ever

attained with loudspeaker playback even under the most fortunate conditions (ultimate components, favorable room geometry, ambitious acoustical tuning, optimal stereophonic triangle).

Secondly, the vast majority of loudspeakers employ directly radiating cone transducers and as such are highly inefficient power transformers (less than 2% of the electrical power is converted into acoustical power). Therefor large cone excursions and comparatively high electrical power levels are required in order to set free even a modest level of acoustical power with ordinary loudspeakers. Moreover, since the sound power density (acoustical power with respect to surface area) discharged by a (omni-directional) sound source is a quadratic function of the distance, a loudspeaker positioned say D=3m away from the listener has to radiate about 6000 times higher an acoustical power than the transducer capsule of an over-ear headphone (d=0.039m) in order to evoke the same loudness at the eardrum of the listener, 6000=square(D/d)=3m/0.039mx3m/0.039m. So very low (acoustical and electrical) power levels are typically involved with headphone listening, which obviously benefits transducer accuracy (midget cone excursion) and fidelity of the driving amplifier (very low non-linear distortion). For example, a 60 ohm headphone with ordinary efficiency can be easily driven to a saturated loudness level with a voltage swing which stay well within 5Vpp (Vpp means voltage measured peak-to-peak), corresponding to a maximal impulse power of about 0.05W, 0.05W=(5Vppx5Vpp)/(8x60ohm).

So obviously there are good reasons in favor of headphone listening!

As in case of loudspeakers, headphones should sound as neutral as possible. Neutral in the sense that the timbre of musical instruments is replayed with utmost accuracy. In order to meet the neutrality demand a headphone capsule obviously is required to evoke an in-ear presentation which is tonally equivalent to the presentation of a calibrated high grade monitor loudspeaker in a favorable acoustical environment at the designated sweet spot. A requirement which is as easy to formulate as it is hard to translate into a framework of measurable targets. In fact this coherence relation is still under research and a point of discussion among experts until the present day.

The first attempt to determine practical criteria for neutrality with regard to headphone capsule design was based on the analysis of the response measured at the alleged eardrum position of a dummy head evoked by a loudspeaker calibrated for even response in the acoustically standardized environment of a reverberatory chamber (total reverberation, zero absorption, so called DIFFUSE FIELD CONDITIONS). This procedure has obvious shortcomings: heads, auricles and ear canals of humans differ considerably and a reverberatory chamber is by no means comparable with an acoustically tuned monitor room of a sound studio. Moreover,

this analysis does not take into account the ability of humans to perceive structural-borne sound (via bone conduction) which, as psycho-acoustics has revealed, is an inseparable and non-negligible element of our sense of hearing.

More recent research carried out by HARMAN International Industries have put forward elaborated variants of the diffuse field target response curve (Harman target response curves for over-ear/on-ear/in-ear headphones) by also taking into account subjective ratings of a group of (trained and non-trained) test persons in order to narrow down the notion of neutrality in the context of headphones. Latest AKG (nowadays a brand of Harman International) headphone models, K371 for example, are claimed to meet a Harman target response curve, whereas the equally highly acclaimed Beyerdynamic DT-770 PRO series of headphones (described below) follow the original diffuse field target response specifications.

As if the conditions were not difficult enough to analyze, there are other effects related to the headphone apparatus themselves which make things even more complicated at the design stage. The tonality of the presentation is namely also dependent on the distance of the diaphragm to the eardrum, the clamping force and ear cup seal. (The first dependency of which is more pronounced with headphones employing a dome diaphragm, while it is fairly negligible with components employing planar transducers.) Therefore, the perceived tonality is to some degree related to the physiognomy of the listener. Moreover, the concrete form of the dummy head (supposed to mirror the physiognomy of the average human) used for evaluation at the design stage inevitably leaves its mark on the response characteristic of the headphone component under creation.
The foregoing remarks may be taken for an explanation why the majority of headphone products deviate to such a high degree from neutrality, and as a matter of consequence, why advanced music lovers tend to dismiss headphone listening. Neutrality is especially critical with open-back headphones, which typically suffer from a more or less severe lack of bass extension and therefor tend to sound incomplete and dissatisfying. Planar magnetic components with full size transducers are an exception to this rule. However, here an impeccable bass response is achieved at the expenses of weak treble extension and inaccurate sound color rendering, hence some other form of haze/coloration. Headphone manufacturers do their best to mask these tonal issues by all kinds of gimmicks and artifices in order to endow their open-back headphone models with a still fairly consistent over-all tonality and idiosyncratic presentation, which at last prove to be efforts with questionable success.

Use professional grade circumaural CLOSED BACK headphones whenever it is possible. It is a widespread miss apprehension that open-back headphones are generally superior to closed back models. The contrary is the case!

In the following four HONEST sounding closed back headphone models are described in detail. Each of which model has proven to offer a high degree of tonal neutrality combined wide band response and great clarity of presentation, and therefor to measure up to the expectations of a discerning music lover. Only one of the four models obligatorily needs mild equalization support via the timbre registers of the DFAmp in order to procure impeccable tonal balance. The assessments made on this occasion are based on extensive long term listening tests of the designer of the DFAmp himself.

Audio Technica ATH-M70x

Over-ear, closed back, dynamic driver capsules, 35 ohms, detachable straight and coiled cables.

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The M70x is the flagship of the highly regarded Audio Technica Monitor-Line series of professional grade headphones. A working horse intended for demanding sound studio applications. Not as widely known as the classic Sony MDR-7506 cans described below. But certainly, superior to the Sony old-timers in many respects. The honest presentation delivered by these cans is exemplary. They offer full and well extended yet tight bass response, uncolored mids and crisp high frequency performance in beautiful balance. It cannot be denied that the M70x are slightly too bright sounding but by no means are they aggressive or piercing. Which make these headphones perfectly suitable for the reproduction of program with a dull tonality (a characteristic often found on (non-remastered) monophonic and early stereophonic recordings of classical music). The M70x does sound most convincing with all kinds of musical genres, just as one would expect from a component optimized for accurate and neutral reproduction.

In view of their well extended and highly resolvent treble performance the M70x is particularly suitable to replay music with highly complex sound texture, for example cantatas or oratorios of classical music. All in all the flagship model of the Audio Technica M-Series of headphones are amazingly consistent sounding headphones (without equalization in the electronic domain!) and are, in our estimation, among the best headphones available on the market. The M70x readily debunks open-back legends like the Sennheiser HD600, HD800 or the Audeze LCD3 as useless costly toys when it comes to uncolored and honest playback.

Fostex T40RP

Over-ear, closed back, planar-magnetic, 50 ohm, detachable straight long and short cable.

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The Fostex T40RP is the closed-back model of the famous Fostex RP series of headphones. A truly classic headphone component (in production since the 1970s) featuring small size planar magnetic transducers with a diaphragm surface area

comparable to the effective cone area of a typical dynamic capsule! These cans have a beautiful tone and offer a very uncolored refined midrange performance (although admittedly the upper bass noticeably bleeds into the mids) yet suffer from a rolled-off treble response. Fortunately, the lack of treble definition is not as pronounced as with planar magnetic components employing full size transducers (Audeze, HiFiman etc.). The user can make a virtue out of necessity and activate the T40RP for playback of too bright and thin sounding program. Or when he is in the mood for enjoying music in a very smooth, laid-back manner. Alternatively, he can equalize the T40 by activating one of the timber registers with treble boost (pos1/2 of the GT selector) in order to transform these cans into a truly world class component capable of reproducing music in a highly convincing way irrespective of genre.

Sony MRD-7506

Over-ear, closed back, dynamic driver capsules, 63 ohm, non-detachable coiled cable.

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These headphones, in production since more than 40 years, are generally considered as sound studio standard for recording, monitor and mixing applications. This reputation is well justified. In the low end they are full-bodied but very tight sounding, with remarkable extension in the sub-bass. The mid-range presentation is highly resolved and is complemented with a crisp and amazingly coherent treble response, though not quite as well extended as in case of the M70x described above. Over all these headphones deliver a tight, articulate and highly involving if not explosive ""close to the ear"" performance which is very satisfying with all kinds of musical genres. The only notable deviation from neutrality occurs in the presence region (1-3kHz) where the Sony cans are slightly too forward sounding. Which, on the one hand, make them ideal for playback of program which tends to lack presence articulation and bite yet, on the other hand, less suitable for playback of sensible classical music where highly precise sound color rendering is crucial (classical chamber music, for example). The sonic presentation of the MDR-7506 profits from mild treble boost (GT selector, pos2) when a well extended slightly pronounced treble response suits the program.

Beyerdynamic DT 770 PRO 80 ohm

Over-ear, closed back, dynamic, 80 ohm, non-detachable cable.

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Beyerdynamic is a famous german company (with very long history) which specializes in headphones and microphones for professional use. Beyerdynamic headphones enjoy a high reputation among musicians, sound engineers and audiophiles worldwide. This holds particularly for the DT-770 PRO family of closed back headphones (available with 16, 35, 80 and 250 ohm capsule impedance) which have been specifically designed for demanding sound studios application where

neutrality and high resolution are crucial features. These headphones, constructed to follow the classic diffuse field target response, combine elaborate design (all essential parts are replaceable), excellent built quality and favorable sonic capabilities at a ridiculously low price point. In our experience the 80 ohm model is the most neutral sounding variant of the 770 family, so it is no wonder that the ""DT-770 PRO 80 ohm"" described and recommended here is by far the most widely used headphone from the Beyerdynamic product line.
As for the sound characteristic, first of all, it should be noted that the 770/80 excels with an exceptionally firm and well extended bass response (due to a unique bass reflex design). Which makes the 770/80 a joy to listen to when bass lines are an impellent force of the musical program. The midrange performance is impeccable yet slightly recessed with respect to the bass (this characteristic is definitely overdone in the DT-1770 TESLA derivate, a model not described and not recommended here). The treble response of the 770/80 is quite in balance with the bass, which gives the over-all-response a mild V-shaped characteristic.
Another peculiarity of the 770/80 (applicable to all Beyerdynamic headphone models) is the comparatively large air chamber between the driver capsules and the ear drum which promotes a certain airiness of the sound image (wide sound stage), an effect which is further yielded and supported by the recessed midrange response, by the way. In this respect the 770/80 differs from the characteristic of the other headphones models described above, which subjectively tend to place the musical movement closer to the ear. The designer of the DFAmp generally prefers a more immediate presentation but readily admits that the more distant and spacious presentation of the 770 has its own appeal. Nevertheless, the 770/80 is capable of reproducing all kinds of musical genres in a convincing manner and there is no doubt that this headphone model belongs to the exquisite guild of honest sounding headphones (without support of equalization in the electronic domain!).

The ATH-M70x, T40RP (equalized in the described manner), MDR7506 and DT770/80 represent the ""holy quartet"" of neutral headphones. Every music lover who is interested in headphone playback should own these components for reference!

NOISE PERFORMANCE

Much care has been taken in arranging each aspect of the internal construction of the DFAmp so as to achieve an extraordinarily good noise performance. However, electromagnetic leakage fields emitted by mains transformers or switching mode power supplies of other electronic devices positioned in the vicinity of the DFAmp may under unfortunate circumstance induce hum into the signal lines of the amplifier via electromagnetic interference. Thus:

The DFAmp requires considered placement for optimal performance!

Idle noise may become audible in the system when the gain of the power amplifier is rather high (and not adjustable, as it is sometimes the case with solid state devices) or the loudspeaker is exceptionally efficient (horn system), whereas a worst-case mismatch scenario will obviously occur when both conditions arise simultaneously. In order to avoid idle noise issues and to ensure conveniently fine volume adjustment the gain of the power amplifier needs to be properly matched to gain of the DFAmp with respect to the efficiency of the loudspeaker. Proper matching can be easily achieved in case the power amplifier allows for gain adjustment. In a matched scenario the volume controls rest near the middle position for a saturated listening loudness (assuming that the program sources are connected to line inputs with suitable gain figures).

Idle noise may become audible in the system when the gain of the power amplifier is not properly matched to the gain of the DFAmp with respect to the efficiency of the loudspeaker!

The DFPre outputs slight hiss noise after the moment of powering on. The noise fades away after the warming-up process of the amplifier has come to an end. When a headphone is (accidentally) switched active during the warming-up phase a pronounced switching transient and voltage surge (limited to +/-15V) will be passed on to its transducer capsules. Therefor it is advisable to observe a delay of at least one minute after the moment of switching on before activating a headphone. The switching transient is of negligible magnitude when the amplifier has reached a stable operation mode (a few minutes after the moment of switching on).

Do not activate the headphone outputs during the warming-up phase of the amplifier!

Never switch the DFAmp on or off while a headphone is connected and switched active!

Always make sure that the headphone outputs are disengaged (toggle selector in the middle position) before connecting or disconnecting headphones to the DFAmp!

TUBES

The DFAmp is equipped with four vacuum tubes, 2x12J5GT+2x12GN7 (or 2x6J5GT+2x12GN7). The 12J5GT is a medium-gain octal-base single-triode with fairly low transconductance from the early times of tube electronics, whereas the 12GN7 is a rather modern all-glass high transconductance power tube with high gain capabilities, making it an ideal choice for buffer applications. Both tubes are unarguably among the most linear amplification devices ever developed in the history of electronic technology. The amplifier comes with a set of NOS tubes which have been hand-picked to meet tight specifications.

The use of tubes with questionable characteristics may lead to a degraded performance of the amplifier. Even serious damage may occur in worst case scenarios!

SETUP

To setup the Dual Function Amplifier power off all devices of the system and proceed as follows.

0. Do NOT connect the amplifier to the mains until steps 1 to 10 have been taken.
1. Make sure that the frontal power switch is in OFF (AUS) position.
2. Bring the master power switch on the power inlet module into the ON position.

It is advisable to switch off the DFAmp at the power inlet when the unit will not be used for a longer period of time!

3. Switch the GT selector to pos6 (full gain, neutral tonality).
4. Bring the ground switch (GS) on the rear panel into position ERDE (earth/ground). With this GS setting the amplifier is grounded in the sense that there is a conductive connection between the central zero point of the circuit and the ground terminal of the power inlet module (thus a conductive connection between circuit zero and earth/ground potential by means of the respective lead of a (3-core) power chord). This connection can be interrupted by bringing the GS into the LIFT position in order to overcome multiple grounding in the setup, which typically results in hum issues due to the so called ground loop effect.

Use the GS to overcome hum issues caused by multiple grounding in the setup!

5. Make sure that the headphone output selector rests in the middle position (AUS, both headphone outputs KH1 and KH2 disengaged).
6. Turn the volume control knob (manually) to a very low angle of rotation.
7. Remove the top lid of the amplifier (eight metric 2.5 Allen screws to release) and install the tubes carefully. Ascertain that the guide pin of the octal base tubes is properly aligned with the socket opening! Tighten the screws properly when reinstalling the lid so as to ensure a proper conductive connection between the lid and the chassis. Make sure that the lid sitts on the chassis with correct orientation (5 slot stars head-on, 4 stars on the rear side).

Never switch on the amplifier unless ALL tubes have been installed!

Never pull a tube out of the socket while the amplifier is powered on!

Always deinstall the tubes and wrap them up in the original protection case before transporting or shipping the amplifier!

Keep the original crate (including the four soft foam inlays and the tube protection case) for later use. It has been specifically designed for safe transport under rough conditions!

8. Bring the amplifier into its final position.
9. Connect the program sources to suitable inputs. Make sure that these components are powered off before setting up these connections.
10. Connect the DFAmp with the power amplifier (active speakers, subwoofer). Choose a reasonably low gain on the power amplifier in case this device allows for

gain adjustment. If our EHT mono blocks are used for power amplification, set the gain selector to pos1 (low gain). Re-consider the gain setting on the power amplifier after the setup has been completed until optimal gain matching with the DFAmp is attained with respect to the efficiency of the loudspeaker. This is the case when the volume control knob of the DFAmp rests near the middle position for convenient listening loudness.
11. Connect the DFAmp to the mains with a 3-core power chord.

LINE OPERATION

12. Power on the program sources (while the DFAmp is still powered off).
13. Switch on the DFAmp while the power amplifier is still powered off. Wait for at least 30 seconds until the warm-up process on the amplifier has come to an end.
14. Switch on the power amplifier.

When powering off the system, always switch off the power amplifier first and then power off the DFAmp and the program sources, observing a delay of at least 30 seconds!

Always make sure that the headphone outputs are disengaged (toggle selector in middle position) before using the DFAmp in line mode (even when no headphone is connected)!

15. Listen to music through the loudspeakers. Adjust the listening volume manually or via remote control. Use the timbre registers (GT selector pos3/4 and pos 5/6) to enhance the presentation if necessary. The minimalist control module features only two pushbuttons (volume up, Lauter and volume down, Leiser) and is powered by 2pcsxAA batteries (not delivered with the unit). The batterie compartment is locked with a metric size 2.5 Allan screw.

Do not forget to switch off the power amplifiers (active speakers, sub-woofer) before employing the DFAmp in headphone driving mode!

Never switch the DFAmp on or off while the power amplifiers OR a headphone is connected and switched active!

HEADPHONE DRIVING MODE

16. Make sure that the power amplifiers are switched off and that the headphone outputs KH1 and KH2 are disengaged (toggle selector in middle position).

Do not forget to switch off the power amplifiers (active loudspeakers, sub-woofer) before employing the DFAmp in headphone driving mode!

17. Activate the desired headphone output with the toggle selector.
18. Listen to music. Adjust the listening volume manually or via remote control. Use the timbre registers (GT selector pos3/4 and pos 5/6) to enhance the presentation if necessary. The minimalist control module features only two pushbuttons (volume up, Lauter and volume down, Leiser) and is powered by 2pcsxAA batteries (not

delivered with the unit). The batterie compartment is locked with a metric size 2.5 Allan screw.

Always disengage the headphone outputs (toggle selector in middle position) before disconnecting/de-installing a headphone!

Never switch the DFAmp on or off while a headphone is connected and switched active!

Do not activate the headphone outputs during the warming-up phase of the amplifier!

Always disengage the headphone outputs (toggle selector in middle position) before using the DFAmp for loudspeaker playback (even when no headphones are connected)!

Always disengage the headphone outputs (toggle selector in middle position) before powering off the DFAmp, even when no headphones are connected!

FEATURE OVERVIEW

- Vacuum tube line control and headphone driving amplifier.
- Both functions performed by the same unique minimalist single-ended zero-feedback circuit utilizing 2x12J5GT+2x12GN7 or 2x6J5GT+2x12GN7 tubes.
- 6x line level inputs, 3x26dB + 2x18dB + 1x10dB gain (2x6 RCA jacks).
- 3x paralleled master outputs with very low output resistance (2x3 RCA jacks).
- 2x toggle-selectable headphone outputs (2x6.35mm jack sockets).
- Remote volume control via motor-driven dual-potentiometer with excellent channel balance and low angle sensitivity for conveniently fine volume adjustment.
- Four on-the-fly selectable tone control presets entangled with a 6dB gain attenuator implemented via 6-position rotary dial (GT selector).
- Full hand construction, point-to-point wiring throughout.
- Ultra low noise and low leakage mains transformer manufactured in-house for 230Vac (115Vac via jumper setting), 100Vac (Japan), 120Vac (USA, Canada), 220Vac (South Korea, China, Thailand, Indonesia), 240Vac (UK) or 245 Vac (Australia).
- Nonmagnetic aluminum casework, front and rear panel with anodized printing, powder coated lids, dimensions: 434x434xH154mm, 154=134+20/footers.
- Dimensions of the crate: 650x650x350 mm. Shipping weight 11.7Kg.

THÖRESS...

A Tribute to Professional Audio Components from the Golden Age of the Electronic Tube !