

# 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 amplifier and a headphone driving amplifier. Both functions are performed by the same minimalist vacuum tube circuit with very low output impedance, providing the amplifier with an outstanding ability to simultaneously drive long cable runs and headphones with an impedance as low as 50 ohms or even lower. The DFAmP also features unique tone control facilities (timbre registers) and a custom designed remote volume control presented with typical THÖRESS style and attention to detail.

The DFAmP 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.

### INPUTS

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

#### High Gain on Inputs #1, #2, #3

The gain on inputs #1, #2 and #3 is 26dB (20-times) when the GT selector rests in pos4/5/6 and 20dB (10-times) for all other selector positions, pos1/2/3. These inputs have a comparatively high input impedance of 80.000 ohms and are suitable for classic analogue program sources such as phono preamplifiers, tuners or reel-to-reel tape machines.

#### Medium Gain on Inputs #4, #5

Inputs #4 and #5 are suitable for modern high output program sources such as CD/DVD players, stand-alone DACs or streamers, offering 18dB gain (8-times) when the GT selector rests in pos4/5/6 and 12dB (4-times) otherwise, pos1/2/3. The input impedance on these two inputs is 30.000 ohms.

### Low Gain on Input #6

Input #6 (input impedance 30.000 ohms) is assigned with exceptionally low gain of 10dB (3-times) and 4dB (1.5-times) with GT selector in pos4/5/6 and pos1/2/3 respectively. It is reserved for sources with exceptionally high output characteristic as they are found on some CD players and DACs with vacuum tube output circuitry. It can also be used for the purpose of strongly enhancing the impact of the timbre registers, as described in the user manual. Summarizing, the gain pattern on the inputs is

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

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

## OUTPUTS

The circuit of the amplifier simultaneously terminates in a frontal toggle switch which feeds two adjacent 2x6.35mm jack socket headphone outputs KH1 and KH2, and a triple output on the rear panel (master output, 3x2 RCA jacks). The master output jacks are connected to the circuit permanently whereas KH1 and KH2 can be disengaged by setting the toggle switch to the middle position. Thanks to the triple output it is possible to simultaneously drive up to three power amplifiers or two power amplifiers and an active sub-woofer module without further adaptation.

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

**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!**

**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 tube) followed by a phase-neutral unity-gain current buffer (12GN7 power tube). As a result of this purist concept the output signal is phase-inverted (shifted by 180 degrees) relative to the input signal. Users who make a point of a formally correct over-all signal phase in their system can apply a simple corrective:

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

## GT SELECTOR

The DFamp allows for subtle tone control via 4 on-the-fly selectable preset timbre registers on two different gain levels implemented by means of a 6-position rotary switch which we call GT Selector (G/AIN and T/ONE, Empfindlichkeit & Klang). Notably, the timbre registers do NOT rely on conventional clumsy and sound destructive tone control circuitry! Each register is realized smartly by interposing solely one additional capacitor (per register and channel) to the circuit! Two positions of the GT selector are assigned with neutral tonality (perfectly flat frequency response). The mapping between selector positions, gain and sound effects is described by the chart below.

Position	1	2	3	4	5	6
Gain	(-)6db	(-)6dB	(-)6dB	Full gain	Full gain	Full gain
Bass	Bass(+++)	0	Neutral	Bass(++)	Bass(+)	Neutral
Treble	Treble(++)	Treble(+)	Neutral	0	0	Neutral

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. The tone function assigned with pos1 of the GT selector can also be used for counteracting the loudness effect (weaker perception of bass and treble frequencies at low listening loudness). In practice, a combination of all three equalizing purposes will likely be simultaneously applicable.

**Use the 4 timbre registers on pos1/2/4/5 of the GT selector for restoring 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. The offset in mid-band gain needs to get balanced out by adapting the volume in order to restore the loudness of the previous sound image concomitantly with the selector movements. The impact of the four timbre registers is to a certain degree dependent on the volume control knob setting: the higher the angle of rotation the more pronounced the sound effects. Accordingly the user can adjust the impact of the timbre registers to his requirements by connecting the program source to inputs with higher or lower gain characteristic and/or by choosing a higher or lower gain on the power amplifier in case this component allows for gain adjustment.

## 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 and grade of diffusion (all of which phenomena are related to sound REFLECTIONS at the room boundaries) 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 sound matches 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 (except the room is an acoustically dead so called anechoic chamber). Consequently, the placement of the loudspeakers and the listening position (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 with the aid of 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 performance 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). Therefore 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  $D=3\text{m}$  away from the listener has to radiate about 6000 times higher an acoustical power than the transducer capsule of an over-ear headphone ( $d=0.039\text{m}$ ) in order to evoke the same loudness at the eardrum of the listener,  $6000=\text{square}(D/d)=3\text{m}/0.039\text{m} \times 3\text{m}/0.039\text{m}$ . 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 moderate to low efficiency can be easily driven to a saturated loudness level with a voltage swing well below 5Vpp (Vpp denotes voltage measured peak-to-peak), corresponding to a maximal impulse power of about 0.05 watts,  $0.05\text{W}=(5\text{Vpp}\times 5\text{Vpp})/(8\times 60\text{ohm})$ .

### **So obviously there are good reasons in favor for 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 (supposed to mirror the physiognomy of the average human) 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 approach 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 procedure 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 the HARMAN International corporation 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 track down the notion of neutrality in the context of headphone reproduction. Latest AKG (nowadays a brand of Harman) headphone models, K371 for example, are designed to meet the respective Harman target response curve, whereas the equally highly acclaimed Beyerdynamic DT-770 PRO series of headphones (described below) are designed to 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 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 used for evaluation at the design stage inevitably leaves its mark on the response characteristic of the headphone component under creation.

The foregoing remarks combine to rather strong reason why the majority of headphone products (no matter of price and claim) deviate to such a high degree from neutrality, and as a matter of consequence, why many advanced music lovers came 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 therefore tend to sound incomplete and dissatisfying. Planar magnetic components with full size transducers are an exception to this rule. However, here a more or less impeccable bass response is achieved at the expenses of weak treble extension and inaccurate sound color rendering, hence some other form of coloration flaw. 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, as long as their customers go on to believe in the unjustified myth that open-back headphones are a must in high end audio.

**Use professional grade circumaural CLOSED BACK headphones whenever it is possible. It is a widespread misapprehension 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 recommended and described in detail, based on the assessments of the designer of

the DFamp himself, gained by extensive listening tests and comparison sessions. Each of which model offers a high degree of tonal neutrality combined wide band response and great clarity of presentation, and therefore to measure up to the expectations of the discerning advanced 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.

### 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 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. 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 sound reinforcement. 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). For the same reason 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.

\*

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 offer

a very refined midrange performance shining through a full bodied if not meaty bass response (although admittedly the upper bass noticeably bleeds into the mids) yet suffer from a weak treble response with early roll-off. Fortunately, the lack of treble definition is not as pronounced as with most planar magnetic components employing full size transducers (Audeze, for example). 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 T40s by activating one the treble-boost registers (GT selector in pos2) 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. And 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 in pos2) when a well extended slightly pronounced treble response suits the program.

### Beyerdynamic DT 770 PRO 80 ohm

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

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Beyerdynamic is a famous german company with long history which specializes in headphones and microphones for professional applications which enjoy a high reputation among musicians, sound engineers and audiophiles worldwide. This

particularly holds for their DT-770 PRO family of closed back headphones (available with 16, 35, 80 and 250 ohm capsule impedance), specifically designed for demanding sound studios applications 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. The 80 ohm and 250 ohm variants of the DT 770 are equivalent in terms of tonality and are both most suitable to get combined with the DFamp. As for the DT 770, regarding their sound characteristic, first of all, it can be noted that the 770/80//250 excels with a firm and well extended bass response. Which makes the 770/80//250 a joy to listen to when bass lines are an impellent force of the musical program. The mid-range performance is impeccable yet slightly recessed with respect to the bass (this characteristic is definitely overdone in the DT-1770 TESLA derivative, a model not described and not recommended here). Whereas the treble response is quite in balance with the bass, giving the over-all-response a mild V-shaped characteristic. Another peculiarity of the 770 (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. In this respect the 770 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 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.

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.

**The DFamp requires considered placement for optimal performance!**

In order to avoid idle noise issues with regard to hiss and tube microphony and to

ensure conveniently fine volume adjustment the gain of the power amplifier needs to be properly matched to the gain of the DFamp with respect to the efficiency of the loudspeaker. Proper gain matching can be easily achieved when the power amplifier itself allows for gain adjustment. In a matched scenario the volume control knob of the DFamp rests near the middle position for a saturated listening loudness when the TG selector rests in pos4/5/6 (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 rather high 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 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. Therefore 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!**

## *EARTH-GROUNDING*

The DFamp features a ground lift switch (GLSW) mounted on the rear panel near the power inlet module. When this switch rests in position ERDE the amplifier is earth-grounded in the sense that there is an internal conductive connection between the central zero point of the circuit and the ground terminal of the power inlet module. So that the circuit receives earth-ground potential when the amplifier is connected to mains power with a 3-core power chord. This earth-ground link can be interrupted by bringing the GLSW into zero position in order to overcome ground loop hum issues, which may arise when other components of the setup happen to be internally earth-grounded (in the above sense) and connected to mains power with a 3-core power chord too.

**Hum issues due to multiple grounding in the system can be resolved by interrupting abundant earth connections, by bringing the GLSW into zero position and/or by using 2-core power chords!**

## TUBES

The amplifier comes with a set of NOS tubes (2x12J5GT+2x12GN7) which have been carefully selected 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!**

**Never power on the amplifier before all tubes have been properly installed!**

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

**Always de-install the tubes and wrap them up in the original protection case before transporting or shipping the amplifier!**

## FUSE

The DFamp draws a current of 0.3A/0.6A from the 230Vac/115Vac mains corresponding to a power consumption of 70 watts. It is protected with a

**1A slow-blowing 5x25mm fuse**

locked in a drawer of the power inlet module. On rare occasions, the fuse may blow at the switching-on moment due to the pronounced current spike drawn by the mains transformer of the amplifier in this instant. In case this condition arises regularly it is advisable to use a fuse with slightly higher current rating.

## SETUP

To setup the DFamp power off all devices of the system and proceed as follows.

Do NOT connect the amplifier to the mains until steps 1 to 11 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. Move the GT selector to pos6 (full gain, neutral tonality).
4. Bring the ground lift switch (GLSW) on the rear panel into position ERDE. With this GLSW setting the amplifier is earth-grounded (in the sense specified described in the paragraph ERATH-GROUNDING). The earth-ground link can be interrupted by bringing the GLSW into zero position in order to overcome hum issues due to the ground loop effect which may occur when other components of the setup happen to be internally grounded and connected to mains via a 3-core power chord too (double or multiple grounding).

**Use the GSW 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 (metric 2.5 Allen-screws) and install the tubes carefully. Ascertain that the guide pin of the octal base tubes is properly aligned with the socket opening! Place the lid back on the chassis with correct orientation (5 slot stars head-on, 4 slot stars on the rear side) and tighten the 8 x screws properly so as to ensure a proper conductive connection to the chassis.

**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 block is 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. Open the batterie compartment of the volume control module (metric size 2.5 Allan screw) and install 2xAA batteries (not delivered with the unit).
12. Connect the DFamp to the mains with a 3-core power chord.

### **LINE OPERATION**

13. Power on the program sources (while the DFamp is still powered off).
14. 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.
15. 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)!**

16. 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.

**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

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

**Take care to switch off the power amplifiers (active loudspeakers, sub-woofer) before employing the DFamp in headphone driving mode!**

18. Activate the desired headphone output with the toggle selector.

19. 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.

**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!**

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# THÖRESS...

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

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