T Plus A Elektroakustik R-Series Phono Module User Manual

Contents

T Plus A Elektroakustik R-Series Phono Module

Welcome
We are delighted that you have decided to purchase a T+A product. With the phono-module PHE-PA R for your R-Series (2000) amplifier you have acquired a top-quality piece of equipment which has been designed and developed with the wishes of discerning listeners as absolute top priority.
This system represents our very best efforts at designing practical electronic equipment incorporating solid quality, user-friendly operation and a specification and performance which leaves nothing to be desired.
All these factors contribute to a piece of equipment which will satisfy your highest demands and your most searching requirements for a period of many years. All the components we use meet the German and European safety norms and standards which are currently valid. All the materials we use are subject to painstaking quality monitoring.

At all stages of production we avoid the use of substances which are environmentally unsound or potentially hazardous to health, such as chlorine-based cleaning agents and CFCs.
We also aim to avoid the use of plastics in general, and PVC in particular, in the design of our products. Instead we rely upon metals and other non-hazardous materials; metal components are ideal for recycling, and also provide effective electrical screening.

Our range of accessories includes high-quality cables and connectors.
We would like to take this opportunity to thank you for the faith you have shown in our company by purchasing this product, and wish you many hours of enjoyment and sheer listening pleasure.

Symbols used in these instructions

⚠ **Caution**! Text passages marked with this symbol contain important information which must be observed if the machine is to operate safely and without problems.

ⓘ This symbol marks text passages which provide supplementary notes and background information; they are intended to help the user understand how to get the best out of the machine.

Caution:
Installation and de-installation of the Phono Preamplifier module must be carried out by **T+A** or one of our authorized dealers.
The installation procedure is described in detail in **T+A** service note “S0122_PHE_PA_R_Installation“.
For any kind of damage caused by improper installation, T+A elektroakustik GmbH & Co. KG accepts no liability.

Adjustments
To achieve the highest possible audio quality the Phono Preamplifier must be carefully adjusted to match the requirements of your cartridge. The T+A Phono modules employ 4 selector switches (two for the right, two for the left channel) to adjust the input sensitivity and the input impedance precisely.
All settings are described in detail in chapter „Operation“.

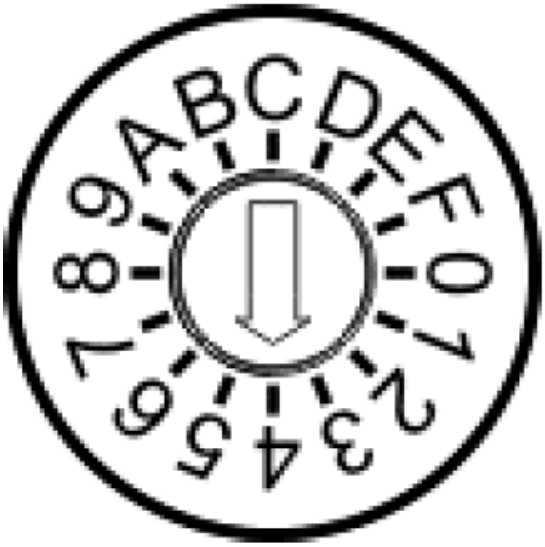
Connections

The connection of a turntable to the PA 2000 R / PA 2500 R / R 2500 R is shown on page 26. Please make sure to connect the additional grounding lead of your turntable to avoid hum and noise.

Operation
Please turn down the volume to a low level and then select „Phono“ as listening source. Start playback of a record and adjust the volume to the desired level.

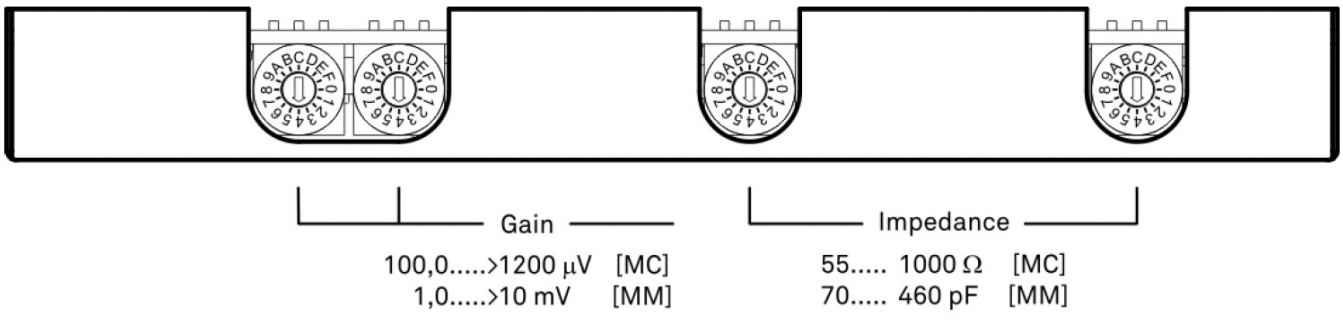
General Settings

Adjustments
Accurate matching is crucially important to the sound quality produced by a pick-up system. For this reason the phono module features a set of rotary switches which enable the user to adjust it perfectly to suit all current pick-up systems.
The rotary switches can be turned to a desired position using a small screwdriver. The arrowhead on the switch points to the selected switch position (on the figure below = position ‘4’).



The input sensitivity, capacitance and impedance should be adjusted as shown in Tables 1 to 4.

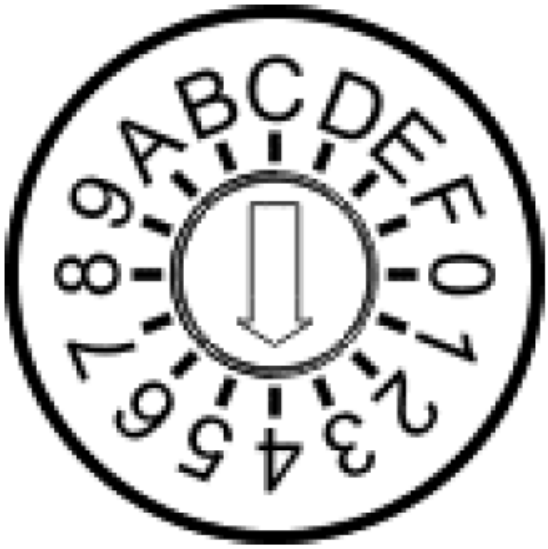
Adjustment sensitivity on the Phono module MM



Adjust the input sensitivity
The rotary switches on the left hand side are used to set the desired input sensitivity for the left and right channels as shown in Table 1. The input sensitivity can be adjusted in 8 steps with and 8 steps without subsonic filter. The information about the requirements of your cartridge will be included in the manufacturer’s specification for the pick-up system you intend to use. Select the value which is closest to the manufacturer’s stated figure. If you do not have access to the manufacturer’s specification, a good starting point for sensitivity is position 2 or A (4,0 – 6,5 mV). This is the factory default setting.

It is essential to set the same value for both channels.
The subsonic filter attenuated rumble and low frequency noise below the hearing band. This helps to avoid excessive excursions of the woofers. To switch on the subsonic filter, please select one of the input sensitivities from the table column marked ‘Subsonic on’ (8…F).

Input sensitivity



Switch position		**Sensitivity [mV]**		
Subsonic off	Subsonic on			
0	8	10,0	…	>
1	9	6,5	…	10,0
2	A	4,0	…	6,5
3	B	3,0	…	4,0
4	C	2,2	…	3,0
5	D	1,9	…	2,2
6	E	1,7	…	1,9
7	F	1,0	…	1,7

Table 1

Adjustment capacity on the Phono module MM

Adjust the input capacity (Impedance)	The rotary switches on the right hand side are used to set the desired input capacitance for the left and right channels as shown in Table 2. The information about the requirements of your cartridge will be included in the manufacturer's specification for the pick-up system you intend to use. Select the value which is closest to the manufacturer's stated figure. Note that the phono connecting lead also represents a capacitance in the range 50 to 200 pF, depending on the manufacturer. It is essential to set the same value for both channels. If you do not have access to the manufacturer's specification, a good starting point for input capacitance is position 4 (170 pF). This is the factory default setting.

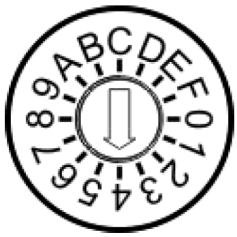
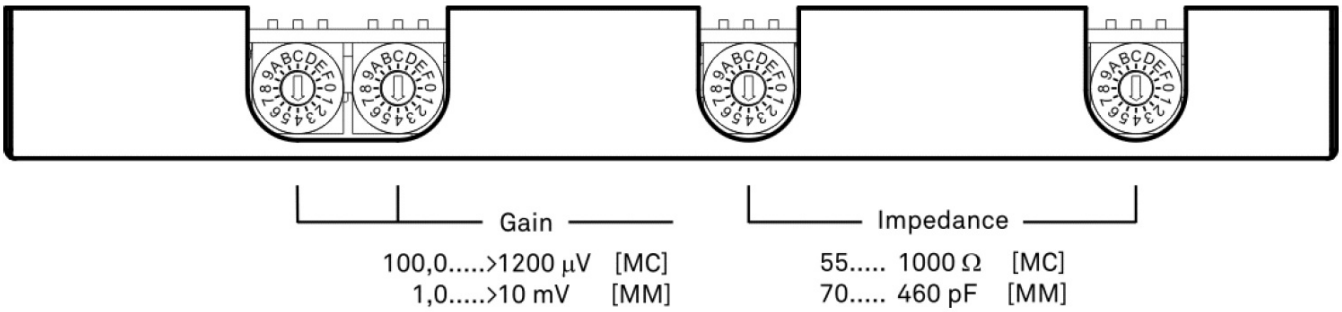
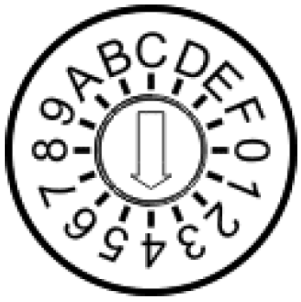
Input capacity  	**Switch position**	**Input capacity [pF]**
	0	70
	1	90
	2	115
	3	140
	4	170
	5	190
	6	215
	7	240
	8	290
	9	310
	A	340
	B	360
	C	390
	D	410
	E	440
	F	460

Table 2

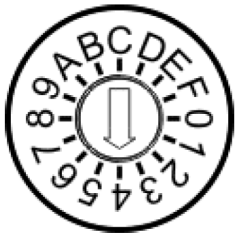
Adjustment sensitivity on the Phono module MC



Adjust the input sensitivity (Gain)	The rotary switches on the left hand side are used to set the desired input sensitivity for the left and right channels as shown in Table 3. The input sensitivity can be adjusted in 8 steps with and 8 steps without subsonic filter. The information about the requirements of your cartridge will be included in the manufacturer's specification for the pick-up system you intend to use. Select the value which is closest to the manufacturer's stated figure. If you do not have access to the manufacturer's specification, a good starting point for sensitivity is position *3* or *B* (330 – 460 mV). This is the factory default setting.		
	It is essential to set the same value for both channels.		
	The subsonic filter attenuated rumble and low frequency noise below the hearing band. This helps to avoid excessive excursions of the woofers. To switch on the subsonic filter, please select one of the input sensitivities (1…8) in the region marked 'SUBS ON'.		

Input sensitivity	**Switch position**		**Sensitivity [µV]**		
	Subsonic off	Subsonic on			
	0	8	1200	…	>
	1	9	700	…	1200
	2	A	460	…	700
	3	B	330	…	460
	4	C	220	…	330
	5	D	200	…	220
	6	E	170	…	200
	7	F	100	…	170

Adjustment resistance on the Phono module MC

Adjust the input re sistance (Impedance)	The rotary switches on the right hand side are used to set the desired input resistance for the left and right channels as shown in Table 4. The information about the requirements o f your cartridge will be included in the manufacturer's specification for the pick-up system you intend to use. Select the value which is closest to the manufacturer's stated figure. It is essential to set the same value for both channels. If you do not have access to the man ufacturer's specification, a good starting point for input impedance is position 8 (100 Ω). T his is the factory default setting.	
Input resistance  	**Switch position**	**Input resistance [Ω]**
	0	1000
	1	500
	2	400
	3	290
	4	180
	5	150
	6	140
	7	125
	8	100
	9	90
	A	85
	B	80
	C	70
	D	65
	E	60
	F	55

Troubleshooting

Many problems have a simple cause and a correspondingly simple solution. The following section describes a few difficulties you may encounter, and the measures you need to take to cure them. If you find it impossible to solve a problem with the help of these notes please disconnect the unit from the mains and ask your authorized **T+A** specialist dealer for advice.

The Playback volume is too low compared to other sources.	**Cause:** The input sensitivity is not correctly adjusted. **Remedy:**
	Change the input sensitivity on both channels to a lower value.
The sound is too bright or too d ull.	**Cause:** The input capacitance is not correctly adjusted. **Remedy:** Change the input capacitance on both channels to match the requirements of your cartridge.
The audio signal is extremely lo w in volume and noisy.	**Cause:** The cartridge is an MC (Moving Coil) system and the phono preamp is a MM version.
	Remedy:
	Please use the correct phono preamp version suitable for your pick-up sys tem.
The audio signal is extremely lo ud and the sound is distorted.	**Cause:** The cartridge is an MM (Moving Magnet) system and the phono preamp is a MC version.
	Remedy:
	Please use the correct phono preamp version suitable for your pick-up sys tem.
Loud humming noise from the lo udspeakers.	**Cause 1:** Poor contact between the RCA or XLR plugs and sockets, or a faulty cable.
	Remedy:
	Please check all connections and cables thoroughly.
	Cause 2:
	The turntable or a device connected to it is not earthed. **Remedy:**
	Connect a separate chassis earth wire from turntable to **PA 2000 R** / **PA 2500 R** / **R 2500 R** .

Approval and conformity with EC directives

In its original condition the unit meets all currently valid European regulations. It is approved for use as stipulated within the EC.
By attaching the CE symbol to the unit **T+A** declares its conformity with the EC directives 2006/95/EC, 2004/108/EC and 2009/125/EC and the national laws based on those directives.
The original, unaltered factory serial number must be present on the outside of the unit and must be clearly legible! The serial number is a constituent part of our conformity declaration and therefore of the approval for operation of the device.
The serial numbers on the unit and in the original **T+A** documentation supplied with it (in particular the inspection and guarantee certificates), must not be removed or modified, and must correspond.
Infringing any of these conditions invalidates **T+A** conformity and approval, and the unit may not be operated within the EC. Improper use of the equipment makes the user liable to penalty under current EC and national laws.
Any modifications or repairs to the unit, or any other intervention by a workshop or other third party not authorised by **T+A** , invalidates the approval and operational permit for the equipment.
Only genuine **T+A** accessories may be connected to the unit, or such auxiliary devices which are themselves approved and fulfil all currently valid legal requirements.
When used in conjunction with auxiliary devices or as part of a system this unit may only be used for the purposes stated in the section ‘Approved usage’.

Disposing of this product
The only permissible method of disposing of this product is to take it to your local collection centre for electrical waste.

FCC

FCC Information to the user
(for use in the United States of America only)
Class B digital device – instructions:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different form that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix
To alter any settings of the Phono preamplifier module it is necessary to open the top cover of the PA 2000 R / PA 2500 R / R 2500 R. Fig. 3, 4 and 7 show the position where the phono module is located. Please adhere to the following points.

- The case is only to be opened by a qualified specialist technician.
- All work must be carried out in accordance with the applicable legal provisions and safety regulations.
- Before opening the case it is essential to withdraw the mains plug at the wall socket, and wait two minutes for all the internal voltages to dissipate!
- Before you touch any circuit board sub-assembly, please touch the earth (ground) terminal marked „GND“ on

the rear face of the unit. This disperses any static charge in your body.

- Remove the four screws of the top cover and unfasten the 4 (8 for the PA 2500 R and R 2500 R) screws of the side panels (fig. 1 and 5).
- Remove the top cover as shown in figure 2 and 6.
- Figure 3, 4 and 7 are showing the module in positon.
- After the adjustments the assembly is done in reverse order.

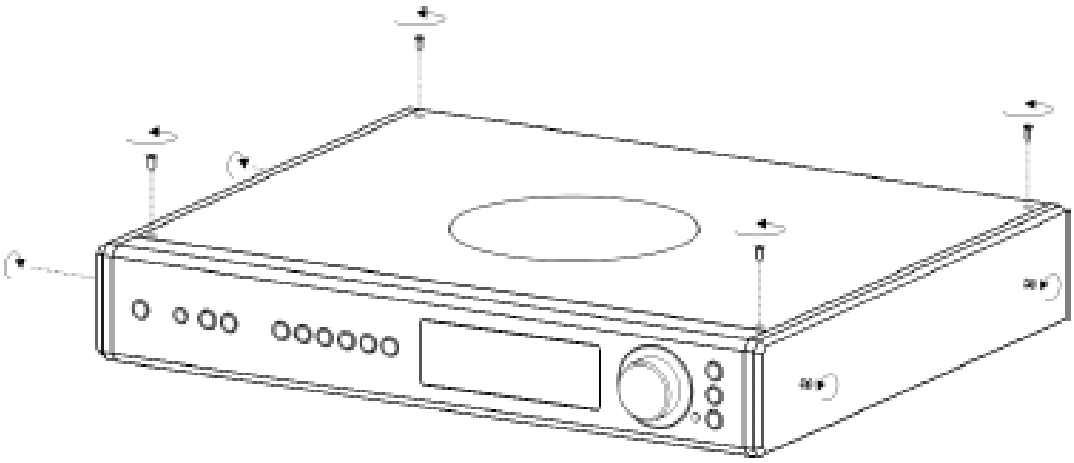


Abb. 1 / Fig. 1

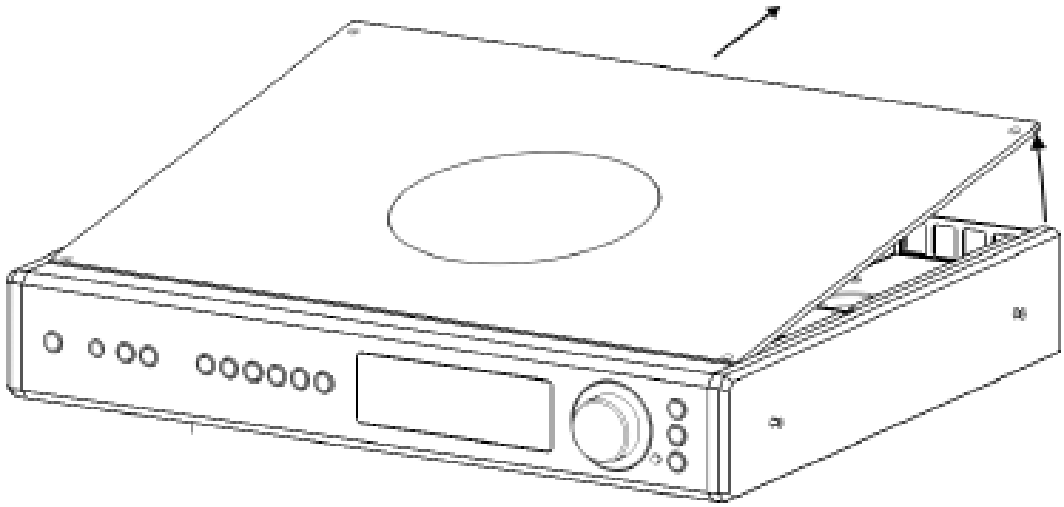


Abb. 2 / Fig. 2

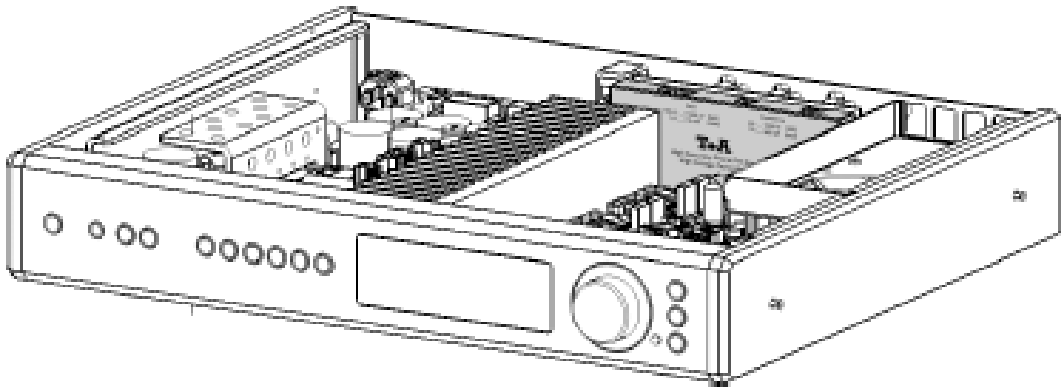


Abb. 3 / Fig. 3

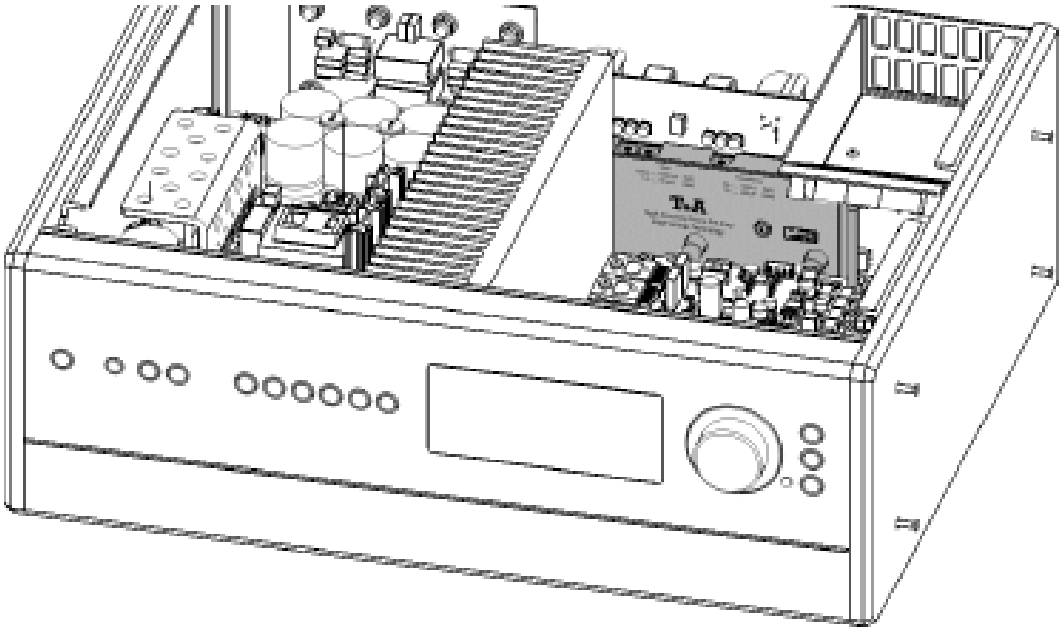


Abb. 4 / Fig. 4

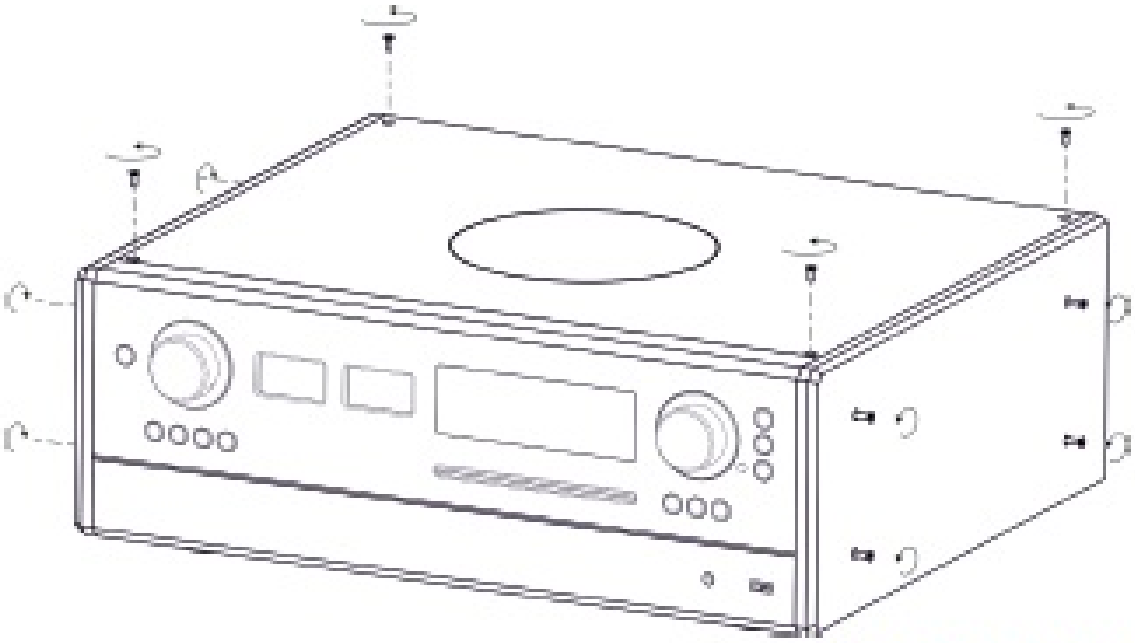


Abb. 5 / Fig. 5

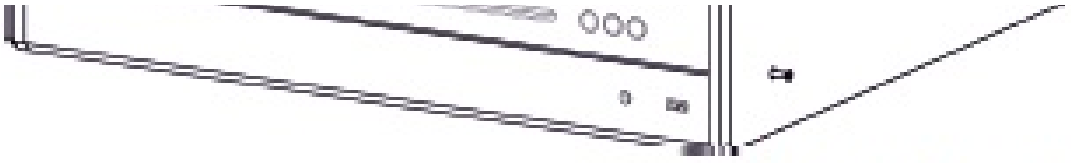


Abb. 6 / Fig. 6

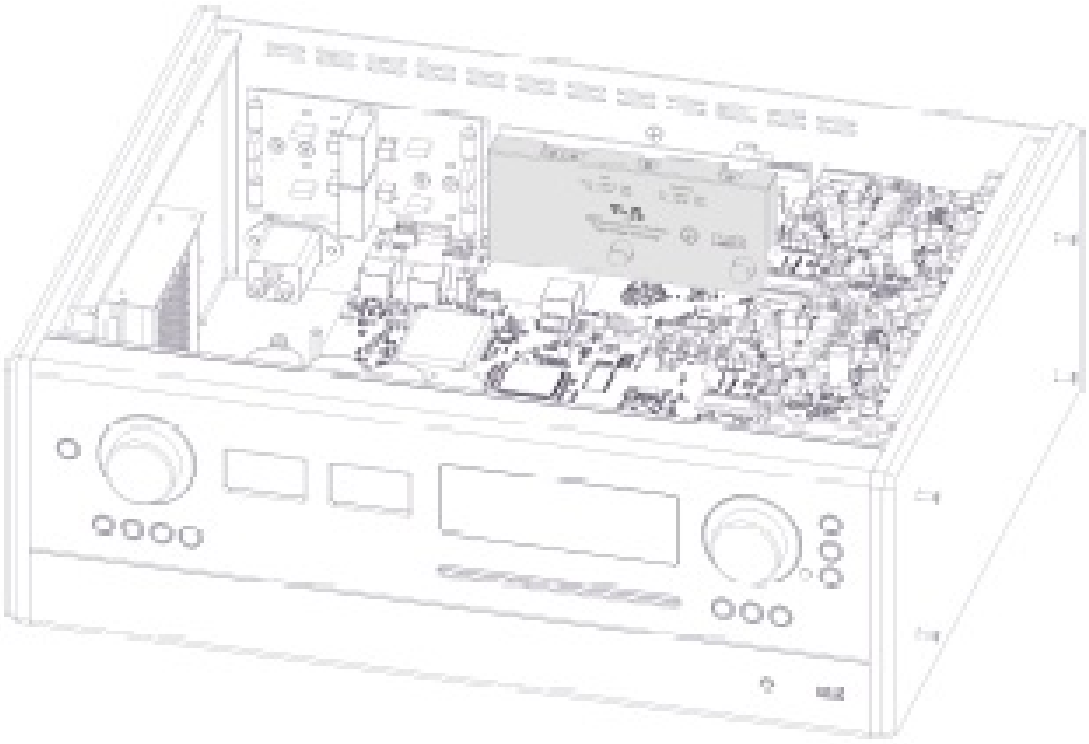
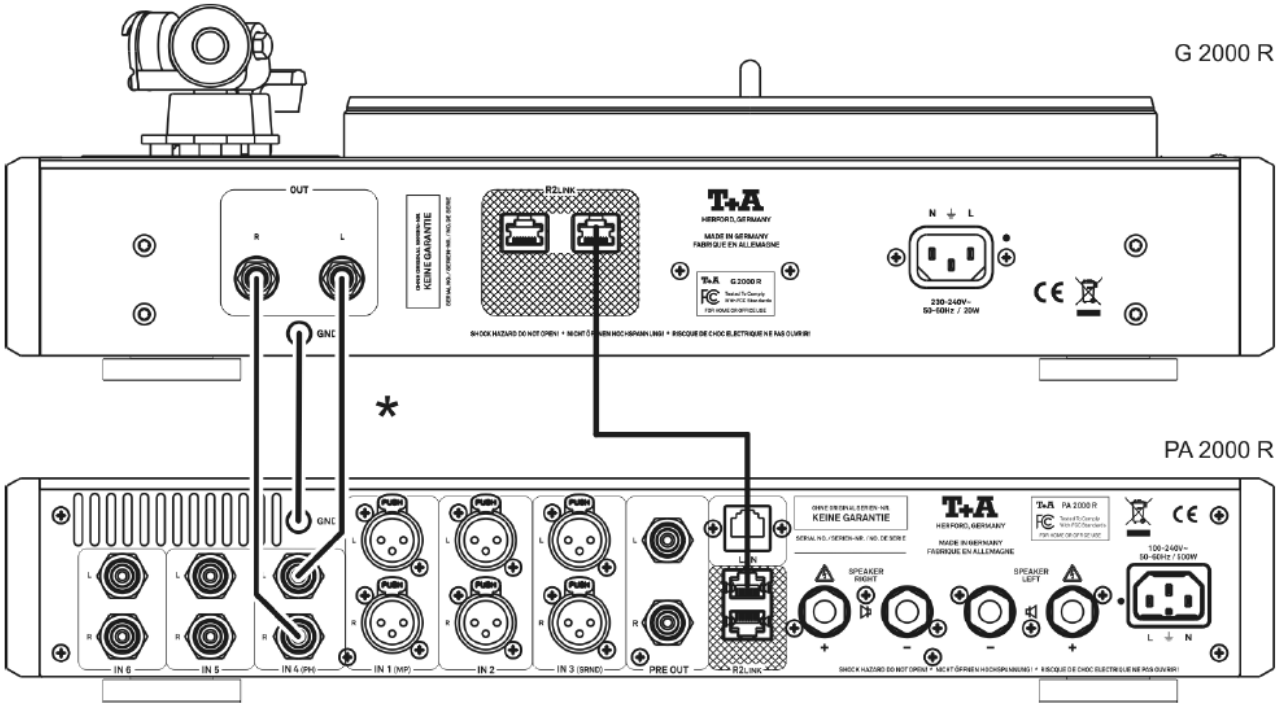
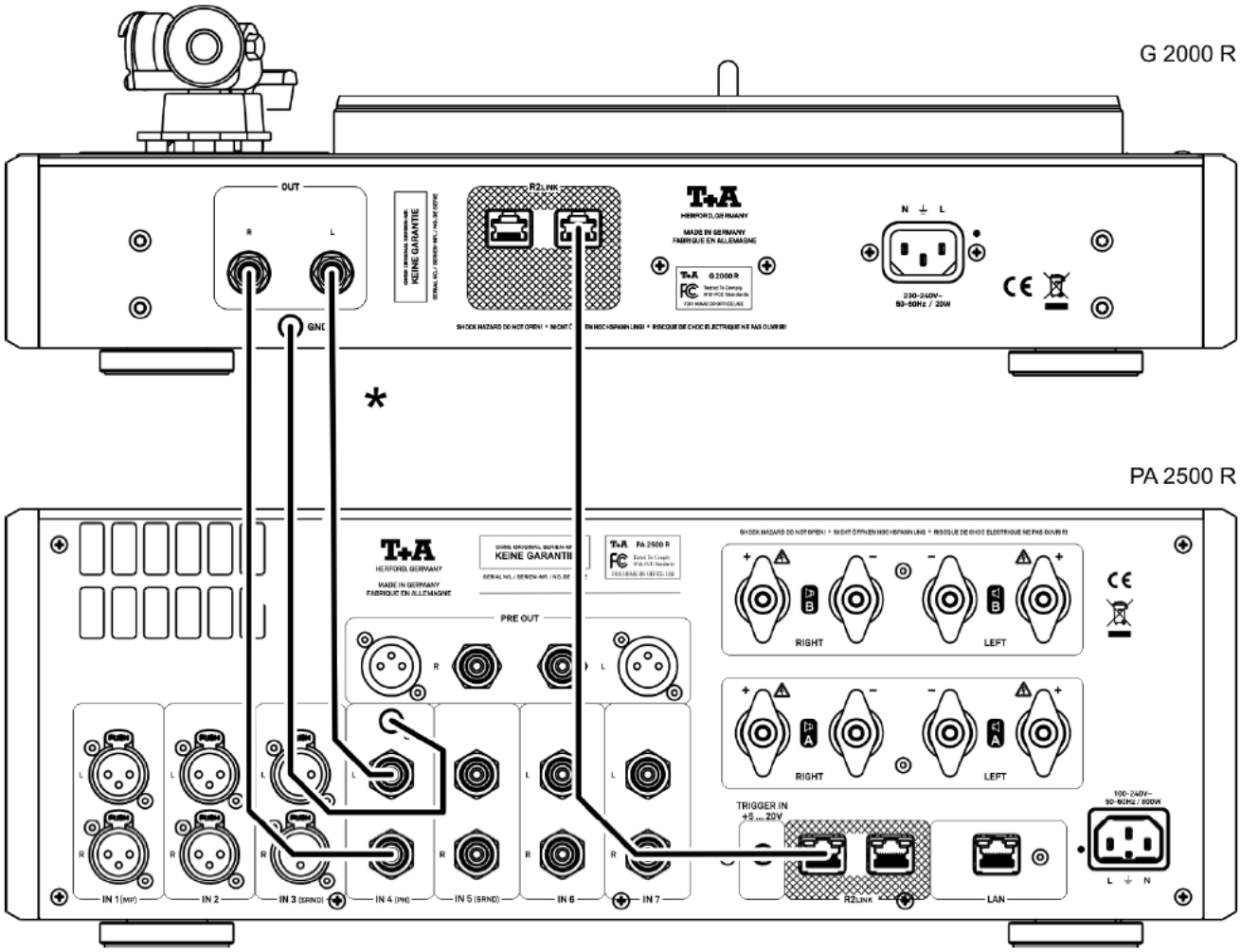
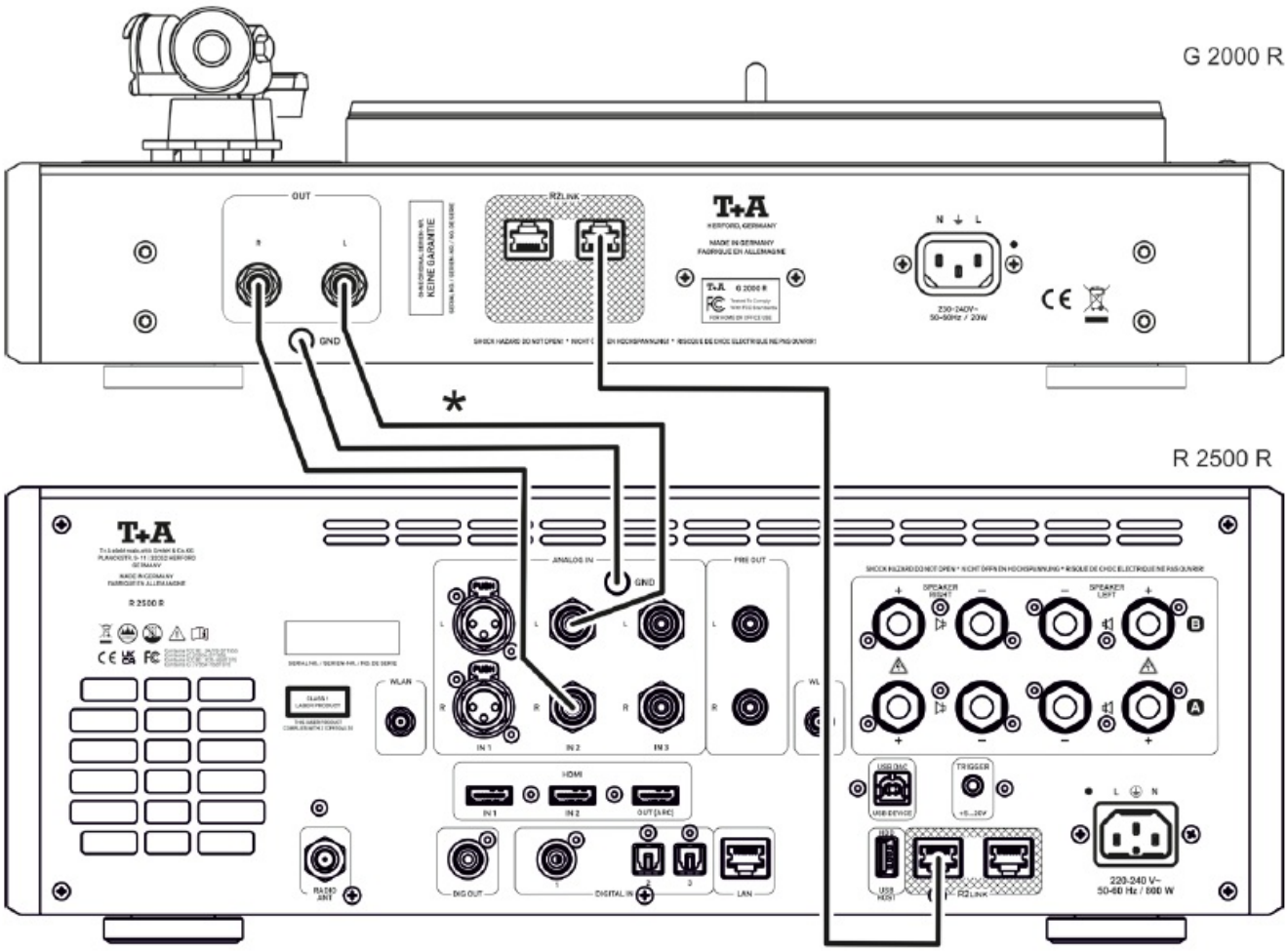


Abb. 7 / Fig. 7

Wiring diagram




G 2000 R
OUT
R
L
GND
R2LINK
T+A
HERFORD, GERMANY
MADE IN GERMANY
FABRIQUE EN ALLEMAGNE
KEINE GARANTIE
230-240V~
50-60Hz / 20W
*
PA 2500 R
PRE OUT
RIGHT
LEFT
TRIGGER IN
+5 ... 20V
IN 1 (MP)
IN 2
IN 3 (BRND)
IN 4 (PM)
IN 5 (BRND)
IN 6
IN 7
R2LINK
LAN
100-240V~
50-60Hz / 800W


G 2000 R
OUT
R
L
GND
R2LINK
T+A
HERFORD, GERMANY
MADE IN GERMANY
FABRIQUE EN ALLEMAGNE
KEINE GARANTIE
230-240V~
50-60Hz / 20W
*
R 2500 R
ANALOG IN
PRE OUT
GND
IN 1
IN 2
IN 3
WLAN
HDMI
SPEAKER RIGHT
SPEAKER LEFT
TRIGGER
+5...20V
USB DAC
USB DEVICE
USB HOST
R2LINK
LAN
DIGITAL IN
BIG OUT
220-240 V~
50-60 Hz / 800 W

Specification

Input sensitivity (for 800 mVeff output level)**:**	100 µV …1200 µV (MC)*	1 mV … 10 mV (MM)*
Input impedance (MC):	55 Ω … 1000 Ω*	
Input capacitance (MM):	70 pF … 460 pF*	
Frequency response (RIAA)**:**	+ / – 0,05 dB	
Sub-sonic filter:	2.Ordnung 7 Hz 2nd order, 7 Hz	
Geräuschspannungs-Abstand: Signal : noise ratio (A-weighted) :	82 dB (**MC**) / 87 dB (**MM**)	
Total harmonic distortion:	< 0,002 %	
Intermodulation:	< 0,001 %	
Channel separation:	> 90 dB	

Can be changed using rotary switches.

Documents / Resources

	T Plus A Elektroakustik R-Series Phono Module [pdf] User Manual R-Series, R-Series Phono Module, Phono Module, Module

References

- User Manual