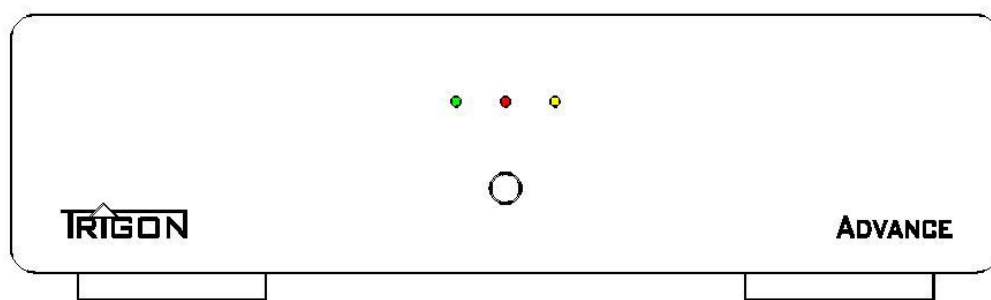




## OPERATING INSTRUCTIONS

FOR PHONO AMPLIFIER

### Advance



## Analogic

Even more than two decades ago, so the propagandists of the new medium Compact Disc wanted it, the record had retired. The number of sold records removed from year to year, those of the CD's increased, until apparently now eternally of yesterday ones and the nostalgic people at unexplainable expenditure maintained and supplemented their record collections and had still no CD player. Yes, in addition maintained they their record player makes more music... and harvested a pitiful smile.

But parallel to this development remarkable happens - and the smiled at record lover and convinced analogue fan formulated not without sneers:

"The claiming already in the year 1980 perfect CD player is constantly improved and to the yardstick of this striving the music rendition becomes similar good analogue record player but not only this. At public demonstrations once CDs were thrown in the surprised public for the demonstration of the insensitivity by Compact Discs then today the realization made itself broad that they want to be treated just as carefully as records, even more, demagnetised, frozen, painted or ground and with coatings provides to sound only correct to be supposed. A similarity or an agreement with living disk washing machines, pucks, disk platelayers and needle cleaners is purely coincidental and not intended.

If the first CD Player made music apparently still in each situation in life and on each underground perfectly, then its descendants received beside constantly improved digital/analogue transducers always more complex housings, damping and, a beggar who thinks bad thereby, sub chassis drives or belt drives.

Almost exorbitantly expensive CD drive assemblies with separate digital/analogue transducers recruit for itself with the statement, now, finally, in such a way to sound like the best record players. But the uneasiness, which in-crept in things CD in the course of the years, seems remained. New digital formats, like SACD and DVD, urge on the market and are to now reach, what was already promised twenty years ago: "SACD has a transmission range as large up to 64 times as the CD. Thus results a refinement of the signal, which corresponds to analogue technique. (dpa/dwe, 14.11.2001)

We consider the evaluation of memory procedures, which work with data reduction, before this background simply renounce able. Rational at this newest stage of the development of digital music storage media, which increases not the transmission range, but the scanning rate, is the insight that people had underestimated substantially the quantity and quality of musical information from the record groove, once again the new wasn't even the. In the age of the permanent announcement of technical sensations and revolutions we form an analogy: High End Audio won't invent each month again. Persistent, consistent advancement and innovation in smaller and larger steps, which is relevant before the introduction on the market, define High End for us at the last state of things.

What now? Sell all CDs as once unfortunately, the record collection? Perhaps the view continues to help that tone carriers and their artful packing are more than only technical, exchangeable canned goods. The speech is about cultural properties and time documents, which are not to be excluded straight from the individual Biography. In this regard the record already furnished the proof of their, also technical, longevity as canned goods, that of the CD isn't done yet. There it is nevertheless reassuring that in the year 2001 the number of the sold records doubled itself to more than in relation to the previous year. (dpa/dwe, 14.11.2001).

The latter makes at the same time hope for a further creative next to each other, which we, apart from the conservative aspect, agree with. Because like the attempt of the CD to be finally records heir had lead to ever better CD-players, without which already in view of the existing software only few can to do and want seriously, then the competition of the new medium has the similar record rendering again accelerated and on, at the gloss times of the old tone carrier,

a probably non-existing level elevated. Never before there were as good drive assemblies, tone arms and pick-up systems as today. Oh, and phono amplifiers with which we would be finite with the topic.

How little has to do the complex task of an equalizer pre amplifier with pure opinion, you'll be told in the next chapter. Who doesn't want to know it so exactly first, may skip this chapter, but only this, to find out, how the Advance wants to be up and adjusted, attached, served and treated, thereby it can help to transform the high-quality, but sensitive phono signals of your records in the best possible way into music and to thank you itself in our name for your investment.

### **Little phono technology and technical description of the Advance**

With the Advance concerns it a phono pre amplifier for the equalization and reinforcement of signal voltage coming from a record player.

Signal voltage coming from a pick-up system is unfortunately not as with CD-players or other audio devices over the shown frequency range linear, but contained with 20 cycles per second approx. 1000 time smaller signal than with 20 kHz. Without equalization the music would therefore sound itself extremely full of high tones.

The task of the phono amplifier or better said the equalizer pre amplifier is it now to produce a linear audio signal from this bent rendition characteristic, i.e. with all shown frequencies equivalent loud.

Thus however not enough, the signals of the pick-up systems are also still very weak (or quietly), so that a relatively high reinforcement is needed to raise the audio signal to the level, which is usually available with all other audio sources (except microphones). With MC pick-ups the task of the equalizer pre amplifier is more fastidious, because the output voltage of these systems is usually lower even again around the factor 10 (i.e. 20dB) than with MM pick-ups.

Furthermore the different pick-up systems need also another appropriate feed impedance, which can be adapted individually for each pick-up, to be able to unfold their qualities complete.

The demands, which are made against a phono amplifier, therefore are:

- 1. Exact equalization of the input signal**
- 2. High, adjustable reinforcement**
- 3. Individual adjustment of the feed impedance**

The first task, **exact equalization of the input signal**, can be mastered only if you use highly exact construction units in the equalizer part of the phono amplifier. Therefore we measure each construction unit for this stage with highly precise measuring instruments. The values of the assigned construction units are selected here on a deviation from less than 1%! Identical pairs of construction units are always formed for the two stereo channels, to exclude channel inequalities. In this way the Advance produces an almost perfectly linear output voltage.

The second task, **high, adjustable reinforcement**, represents a problem of completely different kind. High reinforcement of the information signal means at the same time also high reinforcement of spurious signals. The main spurious signal is thereby the noise. This problem can be solved only satisfyingly with very efficient and at the same time low-noise amplifier stages. In the Advance we use highly exact operation amplifiers, which besides exhibit extremely small distortion values.

The other spurious signal, which leads to problems in phono amplifiers again and again, is the so-called humming. This humming has usually three causes: Stray effect through nearby mains transformers, careless supply voltage and incorrect printed circuit board design.

Over to avoid the stray effects by the mains transformer the power pack of the Advance is accommodated in a separate housing and so it can be set up in some distance to the set.

A special power pack circuit supplies the sensitive amplifier circuit with filtered direct current. In order to however completely exclude net influences, is besides a lead gel accumulator inserted, which (alternatively switch able) supplies the Advance also without power pack support with (principle-caused) really clean direct current.

The printed circuit board design is characterised among other things by a special star shaped arrangement of the pig pus courses, so that humming signals cannot disturb the sensitive amplifier stages.

The reinforcement can be adjusted individually in 16 stages by small mini switches, which are attached on the lower surface of the set. With the help of that table indicated far down you could make the correct attitude for the respective pick-up system there.

The third task, **individual adjustment of the feed impedance**, can be settled with the Advance by a mini switch on the lower surface of the set. Here are six different adjustment resistances and this means 64 combinations are for the adjustment of one MC pick-up and 2 capacities, so there are four combinations for the adjustment of a MM pick-up at the disposal. Information about all combinations gives a table indicated far down.

You recognize already by the larger number of possibilities of adaptation of a MC pick-up that the Advance treats MC pick-ups preferentially. The reason lies in the fact that the majority of the offered High-end pick-up systems are nowadays of the type MC.

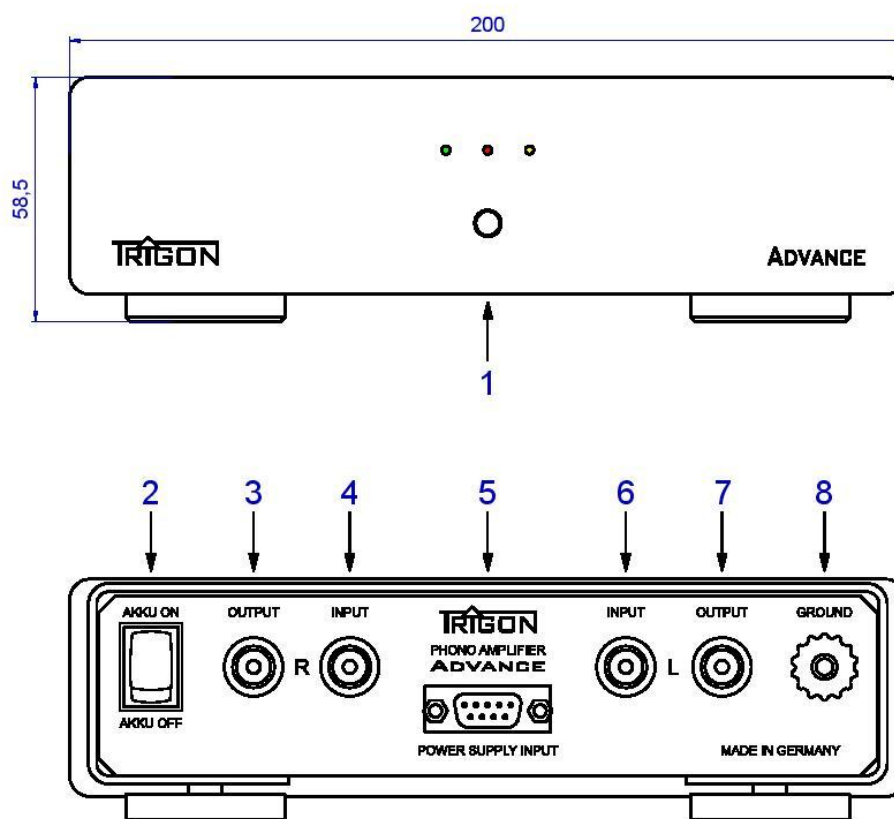
If the case should arise that no suitable combination can be found, then in the inside of the Advance is a plug-in socket for each channel, into which the suitable value can be put. There could be put in a resistance (for MC) or a condenser (for MM) depending on whether type of pick-up. In this way it's ensured that every adjustment can be manufactured which is needed in practice.

Because the Advance is a separate phono amplifier that is connected with the pre- rather full amplifier via link cable, there are also placed high requirements to the output stages of the amplifier. Here we have decided us for an output stage, which makes a sufficiently small output resistance available, so that also cables of more than 2m lengths can be attached. This makes it possible to set up the Advance in direct proximity of the record player and to keep so the cable length between record players and Advance very small. This is of importance, because short cables can to minimize transducer losses and offer at the same time external influences less attack region, so that the anyway very susceptible, low signal of the pick-up is impaired as little as possible.



## The operation and wiring

The following picture shows front and back of the Advance.



### 1. Operating key and control lamps

With the tracer (1) the Advance can be switched on and off, but in addition it can be switched between the two operating modes, pure accumulator mode or combined accumulator - line operation.

A short depressing the key switches the Advance on. Each further short depressing the key switches between the operating modes. To switch off the Advance, the key must to be kept pressed approx. 2 seconds. The operating conditions are indicated in each case by the light emitting diodes over the tracer.

The control lamps signal thereby the following conditions:

**No LED shines for** - The set is out. The power pack supplied however the charger automatic controller for the accumulators and the accumulators are loaded.

**The red LED shines for** - The set is switched on and works in the combined accumulator - line operation. If the Advance is switched on, flashes the red LED several times before it constantly lights up and the signal at the exit is connected through. If no power pack is attached, then the green LED flashes and the set starts in the pure accumulator mode.

**The red and the yellow LED shine for** - The set runs in the combined accumulator - line operation and the yellow LED signalled additionally that the accumulator is fully loaded.

**The green LED shines for** - The set runs in pure accumulator mode. The power pack supplies only control electronics and the announcement LED's. If the accumulator is fully loaded, you can hear music in pure accumulator mode for approx. 6 hours.

If the power pack is separated from electricity mains in the pure accumulator mode, then the accumulator must supply the control electronics and the announcement LED's, too, which leads to a reduction of time of operation in this mode. Therefore leave the power pack always at the net.

**The green LED flashes** - The accumulator is now so far unloaded that it should be loaded now again. Please switch back again to the combined accumulator - line operation, by pressing the key 1 once briefly.

**The red and the green LED shine for** – You switched from the pure accumulator mode to the combined accumulator - line operation, but the separate power pack is not put in or connected with the lighting system.

As soon as you connect the power pack again duly with the Advance rather insert the mains plug into the wall socket, the green LED switches off and only the red LED shines alone, i.e. it is restarted the combined enterprise.

## **2. Accumulator switch**

With this key it is possible to separate the accumulator electrically from the set. This function is important, if the Advance isn't to be operated at electricity mains for longer time, e.g. during transport or during the vacation period. Thus is avoiding an inadmissible over-discharging of the accumulators.

**Importantly!!!** If the Advance were connected neither at the mains nor with the accumulator (accumulator key was switched to OFF without attached power pack), then the separate power pack must with renewed start-up at least for some seconds for river supply the Advance, so that the set can be switched on. From this the accumulator key must be switched naturally to ON. If the accumulator was fully loaded, there isn't an obstacle for you to enjoy now approx. 6 hours pure accumulator mode. Although we do not recommend it, it is now again possible to separate the power pack from the mains. However, the run of the accumulator shortens accordingly, because now the control electronics and the LED's are supplied with river by the accumulator.

## **3. Line Out - right channel**

The output signal of the right channel rests at this socket. Connect this exit with a high level or a line entrance of your pre/full amplifier. Frequently such entrances are designated with AUX. In addition, the CD- or TAPE- entrance of the pre/full amplifier can be used usually.

## **4. Line In - right channel**

At this socket the right channel of the record player (pick-up) is attached. With the mini switches at the ground the feed impedance can be indicated adjusted, like in the table 1.

## **5. Power pack entrance socket**

To this socket the ground power pack belonging to the scope of supply is attached. Therefore you use the likewise cable connection which is attached.

**Make first the connection between power pack and Advance, before you connect the power pack with the lighting system.** Thus it is guaranteed that it comes to no inadvertent short-circuits at the exit of the power pack. If the accumulator key (2) should stand still on OFF, switch it now to ON please.

**Consider please!** - The mains cable has a 9-ending D-sub-plug on both sides like they are to be found in the computer engineering frequently, too. Make sure however that you never operate this cable with and at a computer. Never connect the power pack or the Advance with the computer by this socket because then both sets will take damage.

#### 6. Line In- left channel

It applies the same as described under 4, only to the left channel.

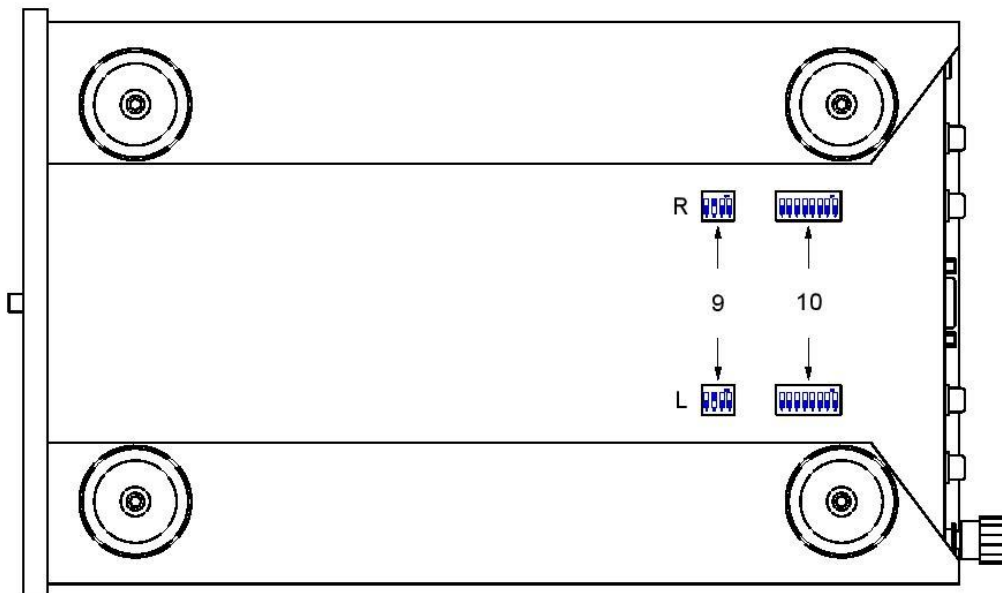
#### 7. Line Out - left channel

It applies the same as described under 3, only to the left channel.

#### 8. Ground (ground terminal)

At this clamp the grounding- rather earth-cable, which is usually led out separately at record players, is attached. In most cases is at these grounding electrodes a fork-putting shoe. To be able to attach this fork, you untwist the knurled thumbscrew of the ground terminal a little and wedge then the fork through closing the knurled thumbscrew. Simple stripped cable ends can be also attached by solving, after that they were put into the lateral drilling of the knurled thumbscrew and then likewise again with the knurled thumbscrew clamped.

View of the ground with the mini switches for the reinforcement (9) and the feed impedance adjustment (10)



## 9. Mini switch for the gain setting

With these switches for each channel the reinforcement is adjusted separately. For the attitude you use the following table as guideline assistance.

### Table of the switching positions for the gain setting

With the four-fold mini switch for each stereo channel on the lower surface of the Advance the reinforcement can be adjusted separated.

As this table shows, the reinforcement between 35,7 dB and 60,2 dB can be adjusted in 16 stages.

S4	S3	S2	S1	Reinforcement in dB	For systems with The following Output voltages
0	0	0	0	35.7	8mV
0	0	0	1	41.5	4mV
0	0	1	0	45.3	2.7mV
0	0	1	1	47.6	2mV
0	1	0	0	48.8	1.8mV
0	1	0	1	50.4	1.5mV
0	1	1	0	51.9	1.2mV
0	1	1	1	53.2	1.1mV
1	0	0	0	56.0	0.8mV
1	0	0	1	56.8	0.7mV
1	0	1	0	57.6	0.64mV
1	0	1	1	58.2	0.59mV
1	1	0	0	58.6	0.58mV
1	1	0	1	59.1	0.54mV
1	1	1	0	59.8	0.51mV
1	1	1	1	60.2	0.5mV

If you do not find the exact value of the output voltage of your pick-up in this table, you could select the value, which comes next to your pick-up.

You reach in each case with the in the preceding table given attitudes a DIN-Output voltage of 500 mV. It's depended from the entrance sensitivity and reinforcement of your pre or full amplifier you need often only a clearly smaller output voltage to achieve the desired hearing volume. You should experiment in this regard because a lower reinforcement can be tonal more favourable.

Louder systems (output voltage more largely 8 mV) can be naturally also attached, however thereby the over-regulation reserve is reduced, i.e. it can come to the over-regulation of the amplifier, which expresses itself by higher distortions.

Quieter pick-ups (output voltage of small 0.5 mV) can be operated accordingly problem-free.

Frequently, pick-up manufacturer indicates the output voltage of their systems in the e.g. following way.

Output voltage = 2.5 mV with 4.36 cm/s

The standardized output voltage refers usually however to a reference fast of 5.6 cm/s. In our case therefore the output voltage results to:

$$\text{Output voltage} = \frac{2.5\text{mV}}{4.36\text{cm/s}} * 5.6\text{cm/s}$$

Thus results an output voltage of approx. 3.2 mV, i.e. you should set switch 1 with the mini switches for the reinforcement to ON.

## 10. Mini switch for the feed impedance

These switches are adjusted separately for each channel the feed impedance. For the attitude you use the following tables 1.1 and 1.2 as guideline assistance.

**Table 1.1 of the switching positions for the entrance capacity**

Adjustment capacities can be connected to magnetic systems by depressing the switches S1 and S2. S3 to S8 are switched off with MM systems, since MM systems are usually operated at input impedance by 47KOhm.

S1	S2	S3	S4	S5	S6	S7	S8	Entrance capacity	Input impedance in ohm
0	1	0	0	0	0	0	0	47pF	47000,0
1	0	0	0	0	0	0	0	100pF	47000,0
1	1	0	0	0	0	0	0	147pF	47000,0

The entrance capacity without connected capacity amounts to approx. 60 - 100pF with the Advance.

Each capacity, which is connected, must be added to this entrance capacity. The cable capacitance of the cable connections between record players and preamplifiers must be added, too. Furthermore the cable capacitance of the cable in the tone arm pipe adds itself. In this way do values of more than 200pF - 300pF often already come without auxiliary capacities.

To be noted it should, however, that deviations by the pick-up manufacturer recommended of the adjustment capacity, in the order of magnitude of 20 - 30 % are acceptable, since during the production of pick-ups frequently similar tolerances develop.

Table 1.2 of the switching positions for the input impedances

100p S1	47p S2	1800 S3	1000 S4	470 S5	220 S6	100 S7	47 S8..	input impedance computes
0	0	0	0	0	0	0	0	47000,0
0	0	1	0	0	0	0	0	1733,6
0	0	0	1	0	0	0	0	979,2
0	0	1	1	0	0	0	0	634,2
0	0	0	0	1	0	0	0	465,3
0	0	1	0	1	0	0	0	369,8
0	0	0	1	1	0	0	0	317,6
0	0	1	1	1	0	0	0	269,9
0	0	0	0	0	1	0	0	219,0
0	0	1	0	0	1	0	0	195,2
0	0	0	1	0	1	0	0	179,6
0	0	1	1	0	1	0	0	163,3
0	0	0	0	1	1	0	0	149,4
0	0	1	0	1	1	0	0	137,9
0	0	0	1	1	1	0	0	130,0
0	0	1	1	1	1	0	0	121,2
0	0	0	0	0	0	1	0	99,8
0	0	1	0	0	0	1	0	94,5
0	0	0	1	0	0	1	0	90,7
0	0	1	1	0	0	1	0	86,4
0	0	0	0	1	0	1	0	82,3
0	0	1	0	1	0	1	0	78,7
0	0	0	1	1	0	1	0	76,1
0	0	1	1	1	0	1	0	73,0
0	0	0	0	0	1	1	0	68,6
0	0	1	0	0	1	1	0	66,1
0	0	0	1	0	1	1	0	64,2
0	0	1	1	0	1	1	0	62,0
0	0	0	0	1	1	1	0	59,9
0	0	1	0	1	1	1	0	58,0
0	0	0	1	1	1	1	0	56,5
0	0	1	1	1	1	1	0	54,8
0	0	0	0	0	0	0	1	47,0
0	0	1	0	0	0	0	1	45,8
0	0	0	1	0	0	0	1	44,8
0	0	1	1	0	0	0	1	43,8
0	0	0	0	1	0	0	1	42,7
0	0	1	0	1	0	0	1	41,7
0	0	0	1	1	0	0	1	40,9
0	0	1	1	1	0	0	1	40,0
0	0	0	0	0	1	0	1	38,7
0	0	1	0	0	1	0	1	37,9
0	0	0	1	0	1	0	1	37,3
0	0	1	1	0	1	0	1	36,5
0	0	0	0	1	1	0	1	35,8
0	0	1	0	1	1	0	1	35,1
0	0	0	1	1	1	0	1	34,5
0	0	1	1	1	1	0	1	33,9
0	0	0	0	0	0	1	1	32,0
0	0	1	0	0	0	1	1	31,4
0	0	0	1	0	0	1	1	31,0
0	0	1	1	0	0	1	1	30,4
0	0	0	0	1	0	1	1	29,9
0	0	1	0	1	0	1	1	29,4
0	0	0	1	1	0	1	1	29,0
0	0	1	1	1	0	1	1	28,6
0	0	0	0	0	1	1	1	27,9
0	0	1	0	0	1	1	1	27,5
0	0	0	1	0	1	1	1	27,1
0	0	1	1	0	1	1	1	26,7
0	0	0	0	1	1	1	1	26,3
0	0	1	0	1	1	1	1	26,0
0	0	0	1	1	1	1	1	25,7
0	0	1	1	1	1	1	1	25,3

A 1 means: Switch posed on position ON  
A 0 means: Switch not switched.



## Further terminating impedances

If the inserted adjustment resistances and capacities hasn't the correct value for your pick-up system then the Advance additionally has a plug-in socket, into which a suitable terminal resistance or a load capacitance can be put.

To arrive this plug-in socket the set must be opened. Switch the set off and take off all plugs. Switch off the accumulator with the rocker switch 2, too, so that the Advance is now completely dead. Now you must unscrew the set feet. Please notice, like the feet are screwed on and respect also that you haven't to lose an individual part. If the set feet are unscrewed, the frame cover can be taken off to the rear. Now the plug-in sockets are accessible, like that is drawn in into the following sketch.

This plug-in socket has 4 contacts each from which the two left rather the two right contacts are connected together.

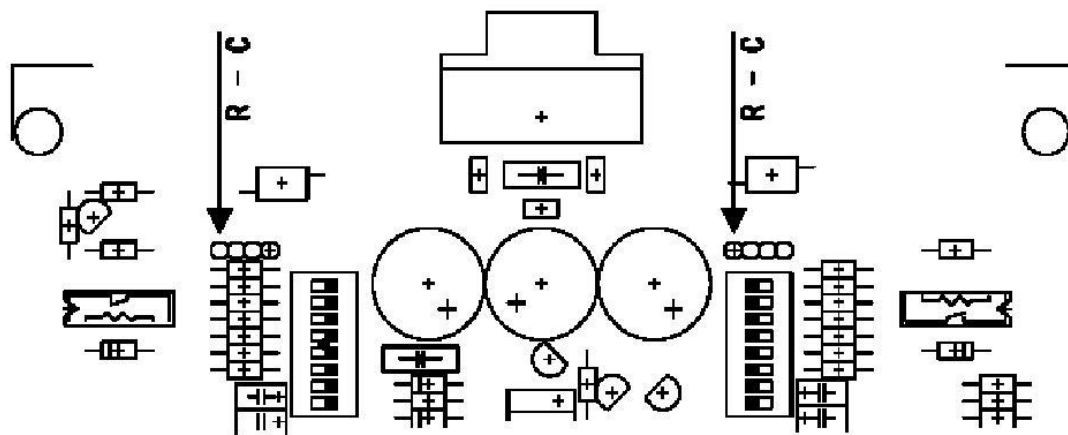
Adjustment resistances are mostly in oblong design available and therefore its will put in into the outside contacts. There are adjustment condensers in different designs (technicians speak here of screen line dimensions). For a condenser with 2.5 screen line dimension please use the two middle contacts.

For a MM-system a condenser (capacity) is usually put in and for the MC-systems you takes a resistance.

Please notice with the selection of the auxiliary capacity that you have to consider the constantly existing entrance capacity of the Advance of approx. 60 - 100pF.

Although this procedure appears a little bit complicated in the first instant, then you are able to settle this work easily, presupposed you care a little. If you like to have it, your specialist dealer will be helpful surely. He could be helpful in the choice and procurement of the adjustment elements that you beyond, too.

Interior opinion. The arrows point to the card locations



In the following example the choice of the correct adjustment value is explained again in detail.

Example:

The MM-pick-up needs according to manufacturer an adjustment capacity of 650pF. Therefore the necessary auxiliary capacity computes itself as follows:

Auxiliary capacity = 650pF - cable capacity - entrance capacity

With a cable capacitance of e.g. 200pF and the entrance capacity of the Advance of 100pF you need 350pF for it.

In the Advance you can connected already 150pF by connecting the two inserted auxiliary capacities, so that now still 200pF must be put into the socket to come to the demanded value of 350pF.

An adjustment resistance is usually needed for MC pick-ups. The computation of the additional resistance is quite more complicated and it happens according to the following calculation specification.

$$R_z = \frac{1}{\frac{1}{R_p} - \frac{1}{R_i}}$$

With

$R_z$  = Additional resistance

$R_i$  = 47000 ohms (input impedance, if no resistance switch is switched on)

$R_p$  = recommended input impedance.

Example:

Are according to manufacturer of the pick-up e.g.. 2,5 KOhm (recommended input impedance  $R_p$ ) demanded, then this value can be reached by an additional resistance (computer centre), which can be put into the plug-in socket. At the same time no impedance-selector-switch may be placed to ON. If you now insert the numbers into the above mentioned formula, then in our case a value of  $R_z = 2640$  ohms results.

Like this input impedances can be produced of zero ohm to 47 KOhm.

### List recommendations

As is the case for almost all electronic devices the Advance should not be exposed to the direct sunlight, too. Because the set warms up a little when it is in operation, you should pay attention to sufficient circulating air.

A phono amplifier is a set with high signal reinforcement. Unfortunately such sets amplify also any spurious signals. One of these radiated spurious signals is the 50Hz-hum by the transformers. To keep this humming as small as possible, we accommodated the mains transformer of the Advance in a separate housing, so that you can set up this power pack in some distance from the Advance. Of course our efforts are useless if the Advance is placed now on other sets with internal mains transformers.

Therefore you haven't to place the Advance on other HiFi-sets. Pay attention to sufficient distance (at least 50 cm) to other mains transformers.

Particularly transformers of halogen light systems and power-output stages have a strong humming scattering field and should be therefore as far as possible from the Advance. A rule is: The more largely the mains transformers the more largely should be laid out the distance to phono amplifier.

Even mains cables or the net wiring in the wall are breakdown emitters. You receive the best results by sufficient distance to these disturbers. According to our experiences an installation in the direct proximity of the record player is the best solution. So the critical cable connection between record players and Advance can be kept short and spurious signals had only few chances to affect the low pick-up signal. At the same time short signal paths means always-smaller transducer losses, too, in particular with sensitive pick-up signals.

## Care references

**Never treat the set with a scrubbing means etc.** Easy contamination such as dust and finger marks can be wiped off with a fog-damp cloth or sponge. Water-dilute-cash contamination (jam, fruit juices, etc.) could be eliminated with a liquid household cleaner, especially with glass cleaners. Mineral oils as well as animal and vegetable fats are wiped off with white spirits or **Isoprophylalkohol**. Always make sure that no cleaning fluid arrives in the set inside.

The ground power pack you should be cleaned only with a fog-damp cloth or sponge and somewhat with a liquid household cleaner. Please pull the mains plug from the wall socket before cleaning the ground power pack. Make also sure that no cleaning fluid arrives in the power pack inside.

## What is if...? Emergency counsellor for possible handling defects

Here we want to try to give you a few Tips, if the Advance wants not so as it has to do.

The Advance cannot be switched on.

The separate power pack isn't connected with the lighting system.  
The power pack cable between Advance and the separate power pack is not attached.  
The accumulator key **2** is not switched on.

The Advance cannot be switched into the pure accumulator mode.

The accumulator key **2** is not switched on. Switch the accumulator key to ON.  
The accumulator is empty. After a load time of approx. 6 hours it would have to work again.

The Advance cannot be served correctly. All LED's are shines.

Pull the plug of the ground power pack from the wall socket and switch off the accumulator key **2**, too. The Advance is now without power and a RESET of the control system is implemented. After approx. 1 minute, you put the power supply plug again in and switch the accumulator key to ON.

Despite attention of the list references loud humming is to be heard.

The grounding electrode of the record player is not attached.  
In some cases it is possible that no grounding electrode should be attached, because a ground- rather a bonding connection already exists over the signal cable. Only purposeful experimenting helps here. You turn the volume at the pre- rather full amplifier to minimum, if you make a change at the ground connection mass wiring. Thereafter you turn the volume again slowly to maximum and then you evaluate again the result in relation to the previous wiring. Is there no changes rather improvements adjust themselves, you have to contact your dealer.

**Technical data:**

Reinforcement:	36 - 60 dB in 16 stages adjustable
Input impedance:	from 25 ohms to 1800 ohms in 31 stages; 47Kohm
Capacity:	Basic capacity = 60? 100pF Insert able capacity = 47pF, 100pF, 147pF
Entrance:	1x Cinch
Exit:	1x Cinch
Weighted signal-to-noise ratio:	-72dBA with 60dB reinforcement and -94dBA with 36dB reinforcement
Frequency response:	+ - 0,2 railways RIAA equalized
Distortion factor THD + N:	0.06%
Crosstalk attenuation:	-96.2 dB with 10KHz
Power input:	7 - 16VA depending upon charge of the Akkus
Dimensions H x W x D:	58.5mm x 200mm x 320mm.

Subject to change

**Production and construction:****Trigon Elektronik GmbH**

Crumbacher Str. 60  
D-34277 Fuldabrück - Bergshausen  
Germany

Tel.: +49 (0) 561 - 20753880

FAX: +49 (0) 561 - 20753888

e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)

web: [www.trigon-audio.de](http://www.trigon-audio.de)

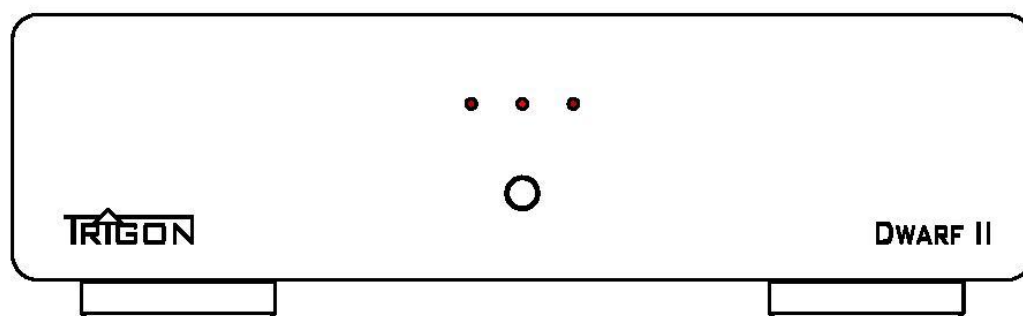
Kassel, December 2010



## INSTRUCTION MANUAL

FOR MONO POWER AMPLIFIER

### DWARF II



Version 1, Juli 2011

## Mono Power Amplifier **DWARF II**

### TRIGON DWARF II - The David between the Mono Power Amplifier

The extreme skinny construction under the use of massive aluminium and structure vanished steel, realizes a timeless and highquality design. Compared with TRIGON Suspension Absorber feet, external disturbances of sensitive music signals will be reduced to a minimum.

The covered power cable **TRIGON VOLT** and a very flat designed, but highly overdimensional power pack, guarantee a signal adequate power supply. This complete and discreet built output stage, which keeps short signal ways, fulfils all the complexity of musical expectations. The **DWARF II** gives - what music plays - with sensitivity and power to the speaker. It is the mediator between the music and its emotions. The **DWARF II** unites precise technology, high operational safety and operating comfort. A long distance signal way protected switch design supervises the amplifier electronic. All operational conditions are switched with a frontage key through a relay and are signalised through LED display. **DWARF II** can be switched on / off either manually, by a fed control voltage or by the audio signal itself. For a pleasant realized operation it is recommended to place the **DWARF II** in immediate proximity to the speakers - not only during stereo operation, but also while using multi-channelling.

We thank you very much for choosing **DWARF II** and wish you to enjoy music and technology.

### **DELIVERY CONDITIONS**

Regularly the **DWARF II** are delivered in pairs in one box. Except the **DWARF II** you will also find two main cables, an operation instruction and a guarantee card.

Please keep the original packaging, so you can send, in case of service or guarantee, safely and avoid transportation damage.

### **INSTALLATION AND START-UP**

Regularly Mono Power Amplifier is situated close to the speakers. With lower ohm output impedances at the preamplifier the connection Cable should not be longer than 5 meters. Avoid direct sunlight, or other heat sources and any kind of humidity. Keep the louvers absolutely free. Don't put the amplifiers on top of each other. There should be at least a minimum of 15 cm space between the **DWARF II**. This measure is important, because the equipment could easily overheat. Turn the volume control at the pre-amplifier to "Zero". Connect one of the exits of the pre-amplifier with the Input (5) of the **DWARF II**.

Connect now the affiliated cable on the speaker (9). Take care of the right poling (pole); otherwise the sound quality would suffer considerably.

Next you have to switch the main cable in the socket (10), and connect it to the 230-volt mains.

Finally you turn the mains switch (12) in direction "-" and your amplifier **DWARF II** is ready for use.

When the **DWARF II** are connected to the mains the Status-LED (2) light up slightly and indicate the Standby-mode.

## **3. OPERATION**

### **3.1 Operating mode switch**

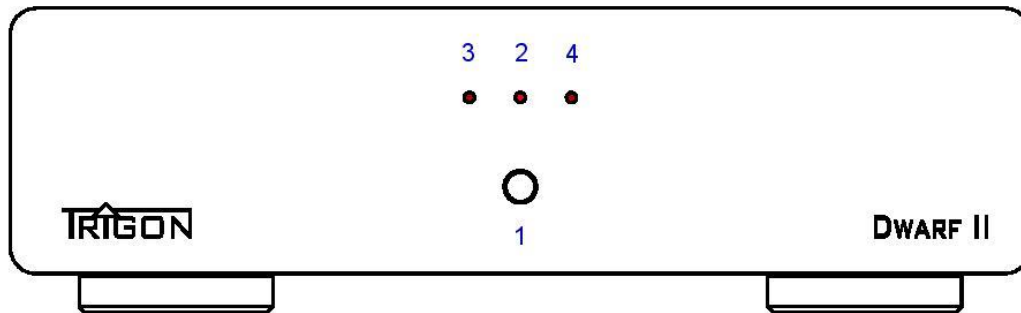
By pressing this key all operating modes are switched. Please find them following:

Switch on - Switch on Audio Trigger - Switch on control voltage Trigger - Switch off

By each single depressing the next following switching level is adjusted. In the end it starts from the beginning again, because the single operations modes are wired up like in a ring.



### 3.1.1 The operating modes in detail:



**Switch on:** A short depressing of the key switches the mono power amplifier on. The Status LED (2) flashes until all operating states work normally. After a few seconds the speaker relays are activated and the LED (2) lights constantly bright.

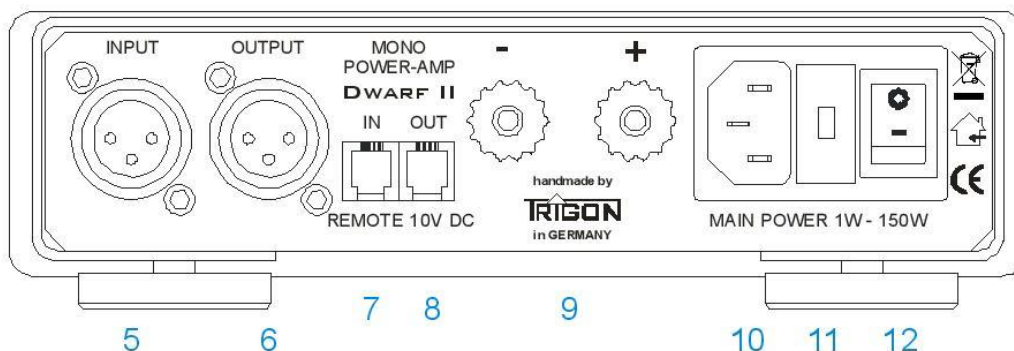
**Audio Trigger:** A further pressing starts the music controlled automatic switchon. If there is for about 4 minutes no incoming music signal, the mono power amplifiers switch off. The LED (2) flashes until the power down is finalized. LED (2) and LED (3) light slightly now. Both LED light up brightly, if there is an incoming music signal to indicate that the Audio Trigger is switched on. Hence DWARF II is switched on/off by the audio signal incoming to the Input (5).

**Control Voltage Trigger:** One further pressing of the key (1) activates the Control Voltage Trigger, which is more elegant than the Audio Trigger. DWARF II can now be switched on/off by a low DC Voltage (3-12Volt). Several preamplifier provide those control voltages by an external socket. This option offers the advantage that DWARF II will be turned on or off whenever the preamplifier is switched on or off. If the Control Voltage Trigger selected LED (3) switches off and LED (4) lights up.

**SWITCH OFF:** By pressing the key (1) one more time the mono power amplifier is switched off and the start up Triggers are deactivated. DWARF II now is in Standby-mode. The next pressing of key (1) switches on DWARF II again and the procedure starts from the beginning.

DWARF II can also be switched off at any position by a longer pressing of key (1). During the pressing LED (2) first flashes quickly, as soon as it flashes slower the key can be released and DWARF II turns off.

### 3.2 Rear Panel controls and connections



**5. Input socket:** To this socket the Output of the preamplifier is connected.

**6. Output socket:** To this socket another DWARF II (or any other power amplifier with symmetrical Input) can be connected (e.g. for Bi-amping)

**7. Remote Input:** To this socket the DC Voltage for the Control Voltage Trigger is connected. The voltage should be between 3 and 12 V.

**8. Remote Output:** This connector outputs a 10V DC voltage when a trigger signal is applied to socket (7). This feature allows to connect e.g. a further DWARF II.

**9. Speaker terminals:** Connector for the speaker cable.

**CAUTION!** The load impedance must not be inferior to 3 Ohms!

**10. AC input socket:** To this socket you connect the AC mains cable.

**11. Fuse compartment:** The main fuse is located here. In the event that the main fuse needs to be changed, please remove the AC mains connector first.

**Caution!** Replace fuses only with the same type to avoid possible damage!

**12. Mains switch:** With this switch the DWARF II is turned to the **Standby-Mode**. It will be switched on finally by pressing key (1). Normally the mains switch can be kept turned on, except you know, you won't use the power amplifier for some days. The current consumption in the Standby-mode amounts less than 2 Watts.

### 4. Protective functions

DWARF II is equipped with several safety functions to protect the power amplifier and connected speakers. All these safety functions are indicated by different flashing sequences of the LED in the front.

- **DC-Offset** (dangerous DC voltage on the speaker output)
- **Overload** (overload of the power amplifier)
- **Temperature control**
- **HF Detector** (high frequency, inaudible oscillation of the power amplifier )

**DC-Offset** can arise when the preamplifier which is connected to the DWARF II itself outputs a small **Offset** voltage. This DC voltage is intensified by DWARF II and the DC Voltage, which is dangerous for the speaker, appears to the speaker Output terminals. Further a DC voltage can appear to the Output, if the set-up of the power amplifier is defective. In this case the DC-protection deactivates the speaker relays immediately to avoid damage to the speakers. When DC-protection reacts the speakers are immediately switched off by the

speaker relays and all three LED are flashing. Please power off the **DWARF II** completely by the mains switch (12) to reset the protection circuit. The **DWARF II** can be powered up again after approx. 10 seconds. If all LED are still flashing after the reset, there may be a defect in the output stage and the unit must be sent in for service. Please contact your authorized dealer, distributor or **TRIGON ELEKTRONIK GMBH** directly.

If LED (3) flashes quickly LED (4) flashes slower at the same time, an **Overload** occurred to the power amplifiers and the speakers are turned off. The flashing of the LED stops after approx. 5 seconds and the speaker relays switches on again. Possible reasons for an overload are e.g. a too low speaker impedance or an over-regulation of the power amplifier expressed in a loud and distorted rendition.

Should the operation **temperature** of the unit reach its maximum permissible value the speakers are deactivated and LED (3) flashes quickly. Once the temperature returns to normal design parameters, the speakers will be reactivated and the LED stops flashing. To supply the power amplifier in cooling down it is useful to turn the volume control at the preamplifier to "Zero".

Sometimes it may happen, that the combination speaker and speaker cable does not suit very well to **DWARF II** and the power amplifiers start to oscillate in an inaudible level of frequency. In this case the power amplifiers warm up depending on the intensity of oscillation, because the power amplifiers emit now power to the speakers. To protect the power amplifier against the oscillation caused by external influences **DWARF II** is equipped with protective electronics which turns off the speakers to stop oscillation immediately. During the deactivation of the speakers LED (4) flashes quickly. After approx. 5 seconds speakers are reactivated again. If LED (4) starts flashing again quickly (and speakers are turned off again), please power off the **DWARF II** at the mains switch and use a different speaker cable. In most cases oscillation can be prevented thereby, provided that the now used cable has a less capacitive resp. inductive rate.

**Following an overview of all LED light sequences and their meaning in short form:**

- **DC-Offset:** All LED are flashing, speaker is deactivated permanently
- **Overload:** LED (3) flashes quickly, LED (2) flashes slower, the speaker turns off short-term
- **Temperature control:** LED (3) flashes quickly, speakers are deactivated till the temperature of the power amplifier returns to normal
- **HF Oscillation:** LED (4) flashes quickly and the speaker is deactivated short-term

## **Specifications:**

Input Impedance	: 47KOhm
Input	: 1x XLR Balanced
Output	: 1x Speaker, 1x Line
Output Power	: 1x 90W at 4 Ohm, 60W at 8 Ohm
Signal Noise	: 40µV (A-weighted)
Frequency Response	: 20Hz – 150KHz (-3dB)
THD + N	: < 0.02%
Dimensions H x W x D	: 59,5mm x 200mm x 330mm
Weight	: 5.2 kg
Warranty	: 3 years

Manufacturing and Development:

**TRIGON ELEKTRONIK GMBH**

Crumbacher Str. 60  
D-34277 Fuldabrück - Bergshausen

Tel. +49 (0) 561 - 20753880  
Fax +49 (0) 561 - 20753888

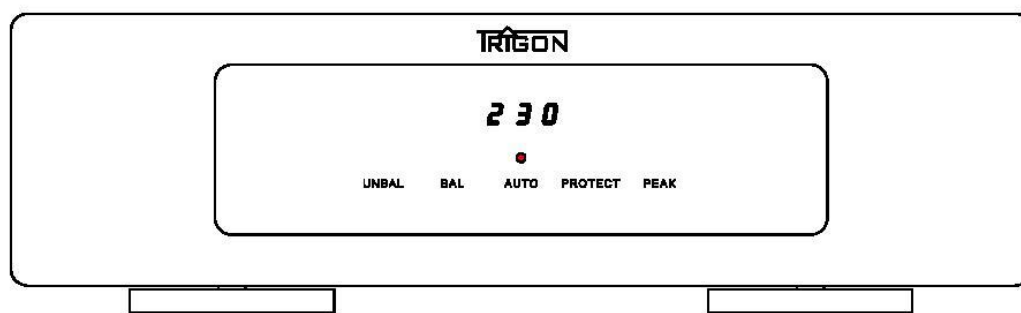
e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)  
web: [www.trigon-audio.de](http://www.trigon-audio.de)



# Operating instructions For

## MONO OUTPUT STAGE

### TRE-50M



## **Preface**

### **Short description**

The output stage TRE-50M is a HiFi achievement amplifier for use in the home. The output stage is constructed in mono technology, i.e. for a stereo application are needed at least two devices.

The advantage over a power amplifier in stereo technology is that the output stages can be set up close to the speaker and thus avoid long, expensive and loss-making speaker cables. Furthermore results an unsurpassable channel separation, which gains substantially a spatial projection of the music. On principle each output stage has of course their own power pack. Influences by a common use of the power pack are therefore impossible. The 300VA strong power transformer and the more than 40000 $\mu$ F electrical capacity makes together sufficient energy available to supply the output stage always in the intended capacity range with electricity and a stable voltage.

The output stage has two entrances, which can be selected over a push-button on the back of the device. Thereby is one entrance in asymmetrical technology (UNBAL) and the other entrance in symmetrical technology (BAL) implemented.

Per a 3.5mm input jack the output stage can be activated remotely (AUTO) by a control voltage (approx. 4-10V DC). This function is also selectable over a push button attached on the back of the device.

The digital voltmeter on the front informs constantly about the actual level of the mains voltage. This function can be switched on and off over a push-button on the back of the output stage, too.

Useful is also the over-regulation announcement (PEAK), which calls your attention to the fact that the output stage has arrived to its power limit and that a further increase of the volume will lead to substantial distortions, this can harm your the output stage and your speaker, too.

### **Start-up**

Please arrange the output stages close to your speakers if it's possible. Avoid direct insolation or other heat sources in direct proximity of the output stages.

The output stages may be switched on only if all interwirings are manufactured. Make sure that there is no short-circuit in the speakers conductor.

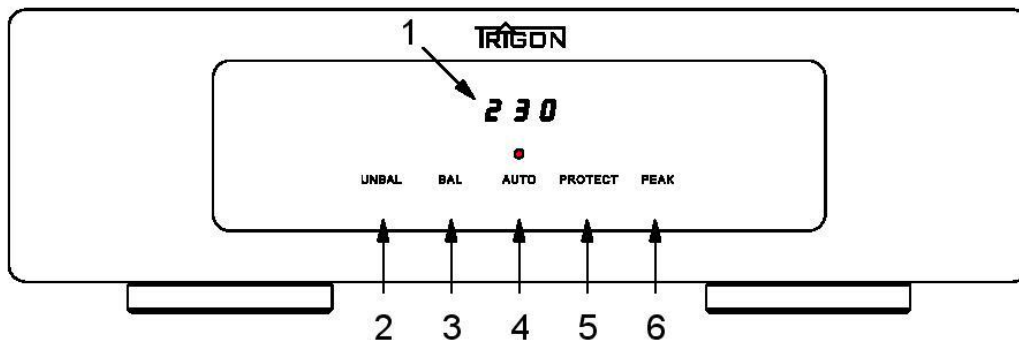
To avoid possible clicks of the preamplifier, you have to switch on at first always the preamplifier and then the output stages.

And to switches off in the reverse order, i.e. you have to switch off at first the output stages and then the preamplifier.



But it's easier and safer if you use the automatic function (nearer information under point 4, 10, 16)

### The display on the front side



#### **1. Three-figure digital voltmeter**

This voltmeter indicates you the actual level of the mains voltage resting in the net entrance socket. It can be switched on and/or off with the key **12** on the back of the output stage. This display has an accuracy of approx.. 2%, i.e., fluctuations in the last place around a digit are normal. This display is usefull for the qualitative estimation of fluctuations of the mains voltages. You will soon find out at which times of day this display stays relative constant, i.e. the mains voltage is stable and sound falsifications by varying mains voltage is smallest.

#### **2. LED display UNBAL**

This display lights up, if you have selected the asymmetrical entrance (13) with the key **11**.

#### **3. LED display BAL**

This display lights up, if you have selected the symmetrical entrance (14) with the key **11**. Presupposed, your preamplifier has a symmetrical exit, should this entrance be used whenever you use longer cables between preamplifiers and output stage. Thus are external voltages, which can occur on a long cable run, suppressed effectively.

*Note:* Usually a called 6dB level stroke would arose at the use of this entrance. To avoid a level jump after switching to the asymmetrical entrance, we have asimilated the reinforcement of the XLR entrance with the reinforcement of the Cinch entrance.

#### **4. LED display AUTO ONE**

This display lights up, if you have switched on the auto mode with the key **10**. Now the output stage automatically switches itself on, as soon as a control voltage of 4 – 10 V is putting on over the socket **16**.

You will appreciate this practical function soon, because now you haven't to activate each output stage separate for switching the output stages on and/or off.

#### **5. LED display PROTECT**

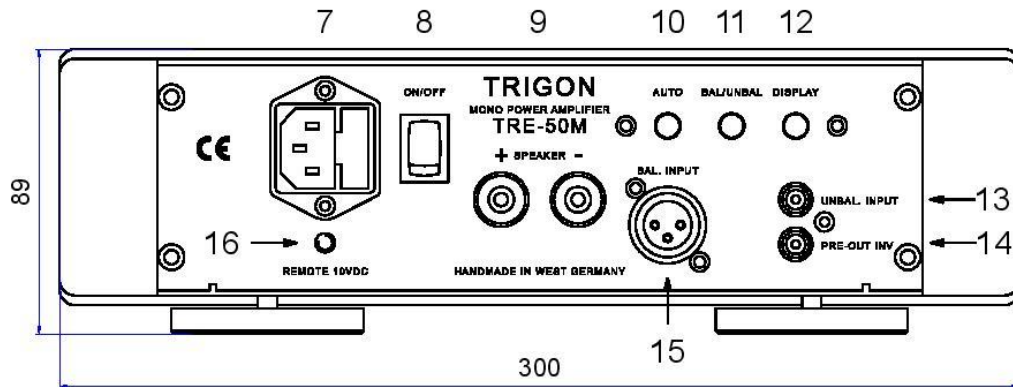
This display flashes, if dangerous DC voltage at the speaker exit were detected by integrated protection electronics. If this display flashes, you should switch off the output stage and after one minute you restart it. But if the display flashes admittedly longer than a half minute, then a defect is present and you must bring the output stage to the service.

Please have attention that this display flashes every time for approx. 15 seconds after switching on, until all supply voltages and operating points have adjusted themselves optimally. Afterwards the protect LED expired and the speaker relay is switched on.

#### **6. LED display PEAK.**

Through strong dynamic jumps in the music it can come at times, depending from the adjusted volume, to an lighting up of the PEAK-LED, but this is however normal. Only if the display lights up more frequent, the volume at the preamplifier have to be reduced, because now the power limit is reached. Reduce a little bit the volume at the preamplifier, cause in the case of an over-regulation the tops of the music signal become „amputated“. The consequence is that strong distortions arises, whereby the high-pitched tones of the attached speaker can be damaged. Usually an over-regulation is good hearable, so that these are fast noticed. Please have a look at the PEAK-display from time to time to avoid a damage of your set if there are large hearing volumes.

## The connections and controls on the back



### **7. Net socket with fuse**

Here the provided high-quality mains cable of the type TRIGON VOLT is put in. Should there be the case that the fuse burned through, the mains cable has to be pulled from the socket (and the wall socket). Now the safeguard subject can be opened with a small screwdriver and a new fuse of same type can be used. But if the fuse burns through immediately after switching on again, then the output stage has to be sent to the service.

Note: The name "fuse" is a bit confusing, because the fuse burns only through usually if an error and/or a defect in the device arises, i.e. the fuse isn't in this case for the security of the amplifier, but rather for the avoidance of fire damage. Notice: The sequence is - at first the defect arises in the output stage and that's why the fuse burns through.

Without an fuse a defective device would be supplied further with electricity and damaged construction units, from which the energy is not extracted, can catch fire fast. Please replace burned through fuses only by fuses of same type!!!

### **8. Power switch.**

This switch is the backbone network switch. If the output stage is not switched in the auto mode (tracer 10), the output stage immediately switches on after activating. If the output stage is in the auto mode (LED AUTO shines), the output stage switches only after connecting the REMOTE control voltage.

## **9. Speaker exit**

The speaker is attached to these clamps. Please make sure that the speaker doesn't fall below a minimum impedance of 2 Ohm. Make also sure that there is no short-circuit at this socket no, so that the output stage doesn't take a damage.

## **10.Key AUTO**

With this key the automatic power up mode will be switched on and/or off. The LED 4 on the front signals the auto mode.

## **11.Key BAL/UNBAL**

With this key the symmetrical or asymmetrical entrance will be selected. The display LED's 2 and 3 indicates each selected channel.

## **12.Key Display**

With this key the digital mains voltage voltmeter can be switched on and/or off.

## **13.Cinch socket UNBAL INPUT**

To this socket the asymmetrical exit of the preamplifier can be attached.

## **14.Cinch socket PRE-OUT INV**

( Has no function.)

## **15.XLR – Input jack BAL INPUT**

To this socket the symmetrical exit of the preamplifier can be attached.

## 16.REMOTE 10V DC

To this 3.5mm input jack the control voltage of 4-10V DC voltage (DC) will be attached. If your preamplifier has a REMOTE exit, you can use the automatic start-up function. It is like that, that if the preamplifier is switched on, a control voltage of approx. 10V DC always rests against the remote sockets, which can be used to switch on the output stages at the same time. Therefore increases this function substantially the ease of use, because you haven't switched on each output stage individually.

Note: To avoid the so-called humming loops, you have to use only one wire for the setting up of a control line and connect the contacts only at the cone point of the 3.5mm input jack. The return is set up already over the signal lines (Cinch and/or XLR). The control cable hasn't to be very thick, because there is just a very low electricity flowing. It's enough if you take a strand wire of the strength 0,25 square millimetres.

An influence of the audio signal by the common use of the earth conductor is not given. Therefore are sound influences not to be feared.

## Technical data.

Power output	: 250 watt at 4 ohm, 135 watt at 8 ohm.
Entrances/input impedance	: 1x Cinch/47 kOhm, 1x XLR/47 kOhm.
Entrance sensitivity	: 1,2 Veff.
Distortion factor (THD + N)	: < 0.03%.
Frequency response	: 0,5 Hz – 200kHz -3dB.
Noise potential	unbal : 10µV (A-weighted) 14µV (unvalued). bal : 15µV (A-weighted) 22µV (unvalued).
Distance of separate source voltage	: -103 dB related to 1 watt at 4 ohm.
Distance of weighted noise voltage	: -106 dB related to 1 watt at 4 ohm.
Weight	: 10.1 Kg
Dimensions	: 300 x 89 x 390 mm (b x h x t).

Subject to change.

## **Production and construction:**

### **TRIGON ELEKTRONIK GMBH**

Crumbacher Str. 60  
D-34277 Fuldabrück  
Germany

Tel.: +49 (0) 561 - 20753880  
FAX: +49 (0) 561 - 20753888

e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)  
web: [www.trigon-audio.de](http://www.trigon-audio.de)

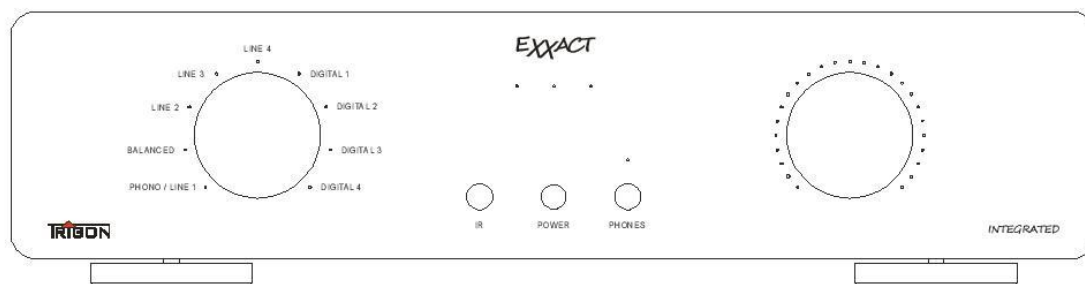




## OPERATING MANUAL

FOR INTEGRATED AMPLIFIER

### EXXACT



## **CONTENTS**

- 1 Introduction**
- 2 General Description**
  - 2.1 Safety Information
  - 2.2 Installation Information
  - 2.3 Warranty and Service Information
- 3 Initial Setup**
  - 3.1 Front Panel Controls
  - 3.2 Rear Panel Connections
  - 3.3 Quick Start Manual
  - 3.4 Remote Control
- 4 What to do, if ...**
  - 4.1 ... unit doesn't turn on?
  - 4.2 ... no sound is produced?
  - 4.3 ... there is a hum?
  - 4.4 ... the remote control doesn't seem to work?
  - 4.5 ... you do unrealistic tests ?
- 5 Technical Data**

# 1 Introduction

Valued **TRIGON** - Customer,

We are excited that you have chosen to purchase the **EXXACT** integrated amplifier.

This unit was built using the highest quality control to insure utmost precision in manufacturing.

Whether you are a beginner to High-Fi or advanced user, it is highly recommended that you read and understand this User's Manual thoroughly before using your new integrated amplifier.

Be sure to keep this manual easily accessible as it could come in handy during normal use of this amplifier.

We hope that you enjoy your new amplifier and thank you for choosing **TRIGON**.

## 2. General Description

The **EXXACT** is a High-End integrated amplifier with 9 inputs (CD-Player, Tuner, TV etc.). There are 5 analogue inputs and 4 inputs for digital devices.

The integrated PHONES amplifier is able to drive headphones with an impedance between 30 and 250 Ohm. The PCM power amplifier is able to drive loads  $\leq 4$  Ohm.

The **EXXACT** can be operated completely via two rotary knobs and a push button as well as via an optionally available IR remote control **DIRECTOR**.

The LED displays are customizable in 4 levels in brightness to suit your personal needs.

The massive cabinet of the **EXXACT** consists of 2mm steel plate as well as a 6mm strong aluminum front panel. The device feet work according to the principle of the disc spring and decouple the **EXXACT** effectively from the stand. Due to this elaborate cabinet construction, microphony sound effects are minimized.

### 2.1 Safety Information

**TRIGON ELEKTRONIK GMBH** will not assume any responsibility for damages occurred from unsafe handling of the product or from not adhering to the recommend safety instructions below.

- The amplifier should not be used un-monitored in close proximity to heat producing devices such as Water heaters, Fireplaces or Flammable materials.
- The amplifier is not designed to withstand heavy impacts or severe vibrations.
- The amplifier should not be used un-monitored when being transported from a cold environment into a warm room.
- The amplifier should not be used when placed out in direct contact with the Sun.
- Insure that the installation location for this product has adequate ventilation.
- The amplifier should not be doused with any type of liquid. It is imperative that no liquid get inside the unit.

- Never use this product without the shielded top cover installed.
- Before removing the top cover always insure that the AC cord has been removed from the AC outlet and that the product has sat to drain any residual current.
- Never short any of the fuses. Replace broken fuses only with original fuses of the same value and type.
- Do not attempt to service this unit. Repairs are only to be done by authorized service centers or through the factory direct. Any such unauthorized repairs will result in a voided warranty.
- Always make sure that your complete audio system is shut off before changing any cables or connecting any other components.

The **EXXACT** power supply is set at the factory to be operated in 115V. Contact your local dealer or **TRIGON** directly if you should need a different voltage version.

## 2.2 Installation Information

During unpacking, please inspect the unit for any potential transportation damage. If you notice any damage, please get in contact with your dealer.

Confirm the contents of the box. In addition to the **EXXACT**, you should also have the following:

- 4 User's Manual
- 5 Warranty Card
- 6 Power cord

Place the unit on a dry, level surface. Be sure that the unit has good ventilation around it. Strong magnetic fields commonly found in amplifier transformers and halogen light transformers can induce hum into a system. Because of this, it is best to place the unit a reasonable distance from such devices. Also, the audio interconnects should not be run in parallel to AC power cables as this can also induce noise.

Hum is also produced from light bulbs. It is best to place audio equipment at least 3 feet away from them.

Try to utilize natural light and make sure not to use the **EXXACT** unmonitored next to heat sources.

## 2.3 Warranty and Service Information

In choosing the **EXXACT**, you have selected a valuable and technologically advance product. We at **TRIGON** are trying to improve our quality control through all steps in the production cycle to insure that all **TRIGON** products meet our quality expectations. If a problem is experienced, **TRIGON ELEKTRONIK**

**GMBH** offers a three-year warranty. This warranty covers repairs for any manufacturing defects.

It does not cover damages that are the result of neglect or misuse. It also is considered void if unauthorized personnel do any repairs or modifications. Any alterations to the serial number, or transportation damage are not covered as part of this warranty.

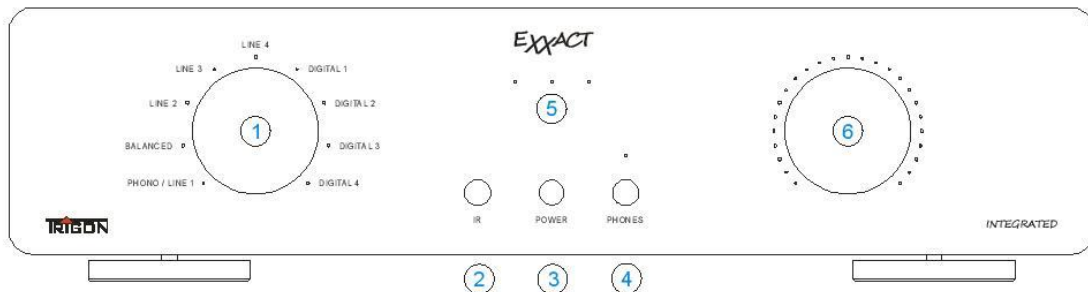
### 3 Initial Setup

After you have unpacked the preamplifier, you should first connect the unit to the power supply and plug it into the AC outlet. Before you have connected any of your other components turn the unit on to test that it powers up properly.

After a short warm-up period, you will hear a quiet “clicking” sound from Relays within the **EXXACT** signalling that the unit is ready to be operated. At this time you should become more familiar with the proper usage and connection possibilities of the **EXXACT**. Test the various controls (i.e. input selection, volume, etc..) at this time for functionality, while none of your sources are connected. This will insure that no damage can occur. After you have tested all the functions and understand how to control the **EXXACT**, you can begin to connect your other audio components.

When connecting cables between components, be sure that both the **EXXACT** and other components are powered OFF!

## EXXACT front view



Plug the Trigon Volt cable into the Exxact's power socket (9), then connect the power plug to the power supply.  
Switch on the integrated standby power supply by pressing the switch (7) on the back of the power supply.

## EXXACT rear view



**CAUTION!!!** Before you start with the wiring, however, you should switch off the Exxact as well as the other devices of your system, as always when working on the cabling!

**Avoid** plugging into a UNBAL INPUT when the Exxact is switched ON. Unfortunately, these connectors are connecting the signal contact first and then connect to the neutral feedback (ground), which usually leads to a very strong buzz , which can destroy the amplifiers and / or your speakers!



## 3.1 Front Panel Controls

We tried to design the number of control elements according to the formula "as much as necessary, as little as possible". In addition, it was important to us during the conceptualization that the amplifier in the basic functions remains as simple to operate as possible and can be operated intuitively. So everyone will immediately assign the function of the volume setting to the large rotary knob (6).

The inputs are selected with the rotary knob (1) and the **EXXACT** is switched on or off with the (3) button.

The elements in detail:

### (1) Inputselector

This knob selects the input. The LED's around this knob show the selected input.

### (2) IR-Window

Behind this disc is the infrared remote control receiver.

### (3) On-Off button

At this button the Exxact can be switched On or Off. The middle LED of the three LEDs (5) above this button flashes until the amplifier is switched on and then illuminates slightly brighter. When switched off, this LED is slightly darker if the main power switch (7) on the rear panel is switched on and the mains voltage is applied.

**NOTE:** We have equipped the **EXXACT** with a very power saving standby power supply. The power consumption in standby mode is less than 1 watt, ie. you can always connect the **EXXACT** to the power supply in standby mode without switching it off completely with the mains switch (7).

If, however, you do not want to use the **EXXACT** for an extended period of time (holidays, etc.), you can switch off the power supply completely with the switch (7). In case of severe storms with a risk of lightning, it is also recommended to disconnect the mains connection, ie pull the mains plug!

### (4) Headphones

A 6.3mm jack plug of a headphone can be plugged into this socket. The impedance of the headphone should be between 32 and 250 ohms.

If you want to switch off the playback via the loudspeakers while you are using the headphones, briefly press the input selection switch (1).

The LED above the headphone connector lights up and indicates that the loudspeakers are now switched off.

To switch the speakers back on, press the input selector (1) again. The LED above the headphone socket switches off, the volume is reduced to the power-on volume, and the speakers are reconnected.

#### **(5) Clipping LED, Power LED, Overheat LED**

The right LED indicates an overdrive of the output stage. The LED in the center is the power indicator of the amplifier. This LED flashes when the amplifier is turned on and when receiving remote signals from the IR remote control. The left LED lights up when the amplifier is overheated. If the left and / or right LED is permanently lit and no signal is heard, the amplifier is in protection mode. This is used to ensure the amplifier is overloaded. To reset it, it must be switched off once.

#### **(6) Volume Knob**

This knob is used to adjust the volume. The adjusted volume is indicated by the LEDs arranged around the volume knob.

Pressing the volume knob invokes the MUTE function. The MUTE function is indicated by a flashing LED of the volume display.

Pressing the knob again or turning the volume knob will cancel the MUTE function and restore the previous volume level.

## **3.2 Rear Panel Connections**

#### **(7,8,9) Power Connection, Power Switch and Fuse**

Use the supplied high-quality power cord Volt to connect the unit to the power supply. Pay close attention to the markings (red dot) and be sure that all power plugs of your system are connected properly by inserting them in the same direction into the AC outlet.

Set the power switch to the on position to supply AC power to the unit. When the fuse blows, replace it only by a fuse of the same rating. Be sure to unplug the unit before replacing the fuse.

#### **(10) Loudspeaker Binding Posts**

The loudspeaker cable can be connected to the two binding posts of that terminal. The positive output terminal is in the top row, the negative is in the bottom row. Make sure that no loudspeakers with an impedance of less than 3 Ohm are connected. Never short-circuit the binding posts in order to avoid damage to your integrated amplifier.

#### (11) Optical Digital Inputs (DIG-3, DIG-4)

These two sockets can be used to connect digital source devices (according to the SPDIF standard) via fiber optics. (E.g., TV set)

#### (12) Digital Inputs (DIG-1, DIG-2)

To these two socket, digital sources devices (according to SPDIF standard) can be connected. (E.g., CD player)

#### (13) REC/PRE OUTPUT

The preamplifier signal is applied to this output. Depending on how the button (14) is switched, the preamplifier signal is applied without a volume control or with a volume control.

#### (14) REC/PRE Switch

When the button is pressed, the volume-controlled preamp signal is applied to the REC / PRE OUTPUT jack (13). Then, e.g. an active subwoofer can be connected. When the button is not pressed, the unregulated preamplifier signal is applied. Now, e.g. a recording device or a headphone amplifier with its own volume control can connected.

**NOTE:** Switch off the connected devices at these output first before you switch of the **EXXACT** to avoid a "Blop" noise.

#### (15) Analogue Inputs (LINE-2, 3, 4)

Analogue high-level source devices can be connected to these sockets. (E.g., tuner, CD player, etc.)

#### (16) Analogue Balanced Input (Bal-In)

Analogue high-level source devices with balanced outputs (XLR) can be connected to these sockets.

#### (17) PHONO / LINE-1

For the **EXXACT** we also offer a retrofitable PHONO preamplifier. If this is installed, a record player can be connected to this jack.

### (18) GROUND

An earth cable can be connected here. This connection is, however, usually required only in conjunction with the PHONO preamplifier.

## 3.3 Quick Start Manual

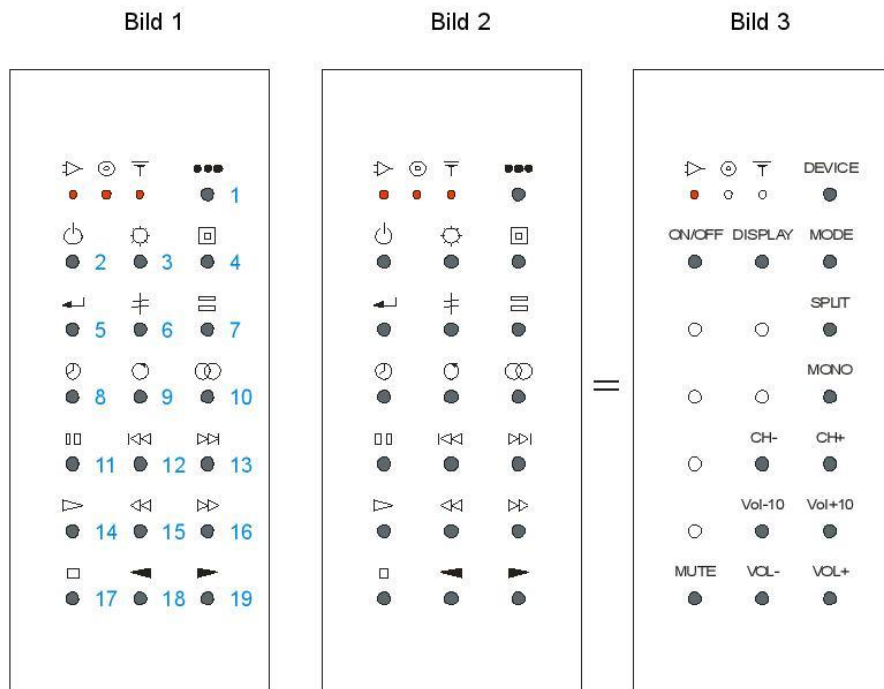
For the very impatient of you, who have already gained some experience with the use of high-end amplifiers, there is a short introduction to the speed-up.

- Cabling (connect sources and speakers)
- Connect the appliance to the mains and switch on the mains switch (8) on the back
- Press the On/Off button (3)
- Select the source device with the input selection switch (1)
- Use the volume knob (6) to adjust the monitor volume
- Ready for operation



### 3.4 Remote Control **DIRECTOR**

The **EXXACT** offers an optional IR Remote called the **DIRECTOR**.



Figures 1 to 3 show the control panel of the Remote controller **DIRECTOR**. In Fig. 3 the buttons, which have no function with **EXXACT**, are highlighted brightly. The Remote controller **DIRECTOR** is a system remote control, i. with it, several devices from the company **TRIGON** can be remote controlled.

The complete keypad can be used three times. A level is provided for the operation on amplifiers  $\triangleright$ , CD-Player  $\odot$  und Server  $\overline{\text{T}}$ . Press the (1) button on the top right, next to the signal LEDs, to select the device type to be operated.

To operate the **EXXACT**, press the button (1) until the first LED flashes under the amplifier symbol  $\triangleright$ .

The "Amplifier Level" is selected and remains selected until another level is selected with key (1). The LED, whose level is currently selected, therefore also illuminates with each pushbutton.

#### The functions in detail:

Press the (1) button to select the remote control keyboard for three different devices. The three LEDs indicate the selected user interface.

The **EXXACT** can be switched on or off with the (2) button, if the mains switch (7) is switched on.

The brightness of the LED's can be adjusted step by step using the (3) button in four steps.

The settings remain stored even after the **EXXACT** is switched off. If you have switched off the LED's completely, the LEDs always light up for a short moment when the Exxact is operated. Change e.g. the volume is displayed briefly the change and a short moment later the display switch off again.

Button (4) has no function at **EXXACT**.

Button (5) has no function at **EXXACT**.

Button (6) has no function at **EXXACT**.

Button (7) has no function at **EXXACT**.

Taste (8) has no function at **EXXACT**.

Taste (9) has no function at **EXXACT**.

Use the (10) button to turn the **MONO** function on or off. In addition, the LED at the lower right of the volume indicator is lit.

Button (11) has no function at **EXXACT**.

Press the (12) button to select the previous input. If you reached input 1 nothing happens.

Press the (13) button to switch on the next input. When the highest input is reached, nothing happens.

Button (14) has no function at **EXXACT**.

Pressing the button (15) will decrease the volume 10 steps.

Pressing the button (16) increases the volume by 10 steps.

Pressing the button (17) turns the **MUTE** function on or off. **EXXACT** remembers the currently setting of the volume level and sets the volume to the lowest value for **MUTE**. A new push at that button disables the **MUTE** function again and the previous volume value is reset. When the **MUTE** is on, the volume indicator flashes. The **MUTE** function can also be canceled by changing the volume.

Press the button (18) to decrease the volume.

Press the button (19) to increase the volume.



**NOTE:** The function "Volume" (key 18 and key 19) is always available for amplifier operation, regardless of which remote control unit is currently set. Therefore, these two buttons do not have any function for CD players or servers.

## 4 What to do, if...

This chapter is designed to help diagnose and trouble-shoot some of the most common errors.

### 4.1 ... unit doesn't turn on?

- Is the AC plug from the Power supply connected properly to the AC outlet? – *Secure connection.*
- Does the AC outlet that you have the power supply connected to have current, or is it possible that the fuse for that outlet has been blown? – *Test the fuse for that AC outlet at the house fuse box.*
- Is the power switch (7) at the rear side switched ON? – *Switch it ON.*
- *Is the internal fuse blown? – Contact your dealer.*

### 4.2 ... no sound is produced?

Do you have the correct input selected? – *Select the intended input..*

Is the selected source even sending a signal? – *Select a different input with another connected source to test if it works. If this source works, then you should test the first source to be sure that it is functioning properly.*

Is the MUTE function activated? – *Press the MUTE button, or simply turn the volume knob.*

Has the unit encountered a static electric charge? – *Sometimes it can occur, especially during winter months, when humidity is higher, that your clothing will carry a slight static electric charge. This charge can be transmitted to the preamplifier during normal use and may confuse the microprocessor used to control the **EXXACT**. This is a common problem with many common computers as well. If this happens, the **EXXACT** will turn off the output relays to protect the rest of the system. To fix, first try to change the selected input, which should reset the output relays. If this doesn't seem to work, disconnect the AC cord from the wall outlet for approx. 30-60 seconds. Reconnect the AC cord and the amplifier should work without any problems.*

### 4.3 ... there is a hum?

Are all the connections fastened securely? – *Test all cable connections.*

Sometimes multiple problems can contribute to a magnetic reception, which will result in a system hum. To fix these types of problems, it is recommend that you contact your local dealer who has many years of experience in trouble shooting such issues.

It hums only when connected to a Tuner, VCR or Television? – *All of these components are also connected to some type of grounded Antenna. This problem can also be related to a magnetic reception. In this case however, the resolution is quite simple. Use of a shielded power filter on the antenna can reduce or eliminate this hum. These types of shielded power filters are readily available at most HiFi or Radio stores.*

### 4.4 ... the remote control doesn't seem to work?

Does the remote work when set into the Preamplifier mode? – *Press the (PRE)AMP button on the remote control. It is now set to control the **EXXACT** integrated amplifier.*

Are the batteries empty? – *Install new batteries.*

Are you using the remote too far from the preamplifier? – *Get closer to the preamplifier. IR-remote controls do have an ideal use distance. With full batteries, the unit will only function with in  $\leq 7$  meters from the amplifier.*

If the sensor of the remote control is exposed to direct, bright sunlight, the use distance will become shorter. – *Avoid direct sunlight!*

### 4.5 ... unrealistic tests are carried out ?

The Exxact integrated amplifier has been designed to operate under normal real conditions intended for audio amplifiers. Only in this way it will be able to produce high quality playback of audio signals. Unrealistic tests, such as listening to an unoccupied input at full volume, only result in a nonsense noise and noise signal, which is normal under such conditions. Also quickly successive actuation of the control buttons or rotary switches at the **EXXACT** or also at the remote control has no realistic meaning or purpose and produces only malfunctions, without having any benefit or symbolizing a quality feature.

So that you can enjoy your audio system for a long time, it should be operated as intended.

## 5 Technical Data

Inputs	: 5x analogue, 4x digital SPDIF
Input Impedance	: analogue 47 KOhm
Input Sensitivity	: 0,5V
Output Power	: 2x 95 / 130 W at 8/4 Ohm
Damping Factor	: >100 (at 8 Ohm 1KHz)
Distortion ( THD + N)	: < 0.02%
Outputs	: 1x Speaker, 1x Phones, 1x unbalanced Line Out
Bandwidth	: 20 Hz – 22kHz (-3dB)
Signal Noise	: -94 dB at 1 Watt at 4 Ohm
Weight	: 11,3Kg
Dimensions	: 440 x 110 x 380 mm ( BxWxD )

10.2016 Specifications subject to change

**Designed and Manufactured by:**

**TRIGON ELEKTRONIK GMBH**

Crumbacher Str. 60  
D-34277 Fuldabrück - Bergshausen

Tel. +49 (0) 561/20753880  
Fax +49 (0) 561/20753888

e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)  
web: [www.trigon-audio.de](http://www.trigon-audio.de)



## MANUAL

INTEGRATED AMPLIFIER

**EXXCEED**



## Contents

1	Introduction.....	3
2	General Description.....	3
2.1	Safety Information.....	3
2.2	Installation Information.....	4
2.3	Warranty and Service Information.....	4
3	Initial Setup.....	6
3.1	Front Panel Controls and Display.....	7
3.2	Settings.....	9
3.2.1	Level.....	9
3.2.2	Volume Start.....	9
3.2.3	Balance.....	10
3.2.4	Out.....	10
3.2.5	DAC.....	10
3.2.6	Unity Gain.....	10
3.2.7	Power Management.....	11
3.2.8	Color.....	12
3.2.9	Name.....	12
3.3	Rear Panel Connections.....	13
3.3	Quick Start Manual.....	15
3.4	Exxceed and the Remote Controller Director Premium.....	16
4	What to do, if.....	17
4.1	... unit doesn't turn on?.....	17
4.2	... no sound is produced?.....	17
4.3	... there is a hum?.....	18
4.4	... unrealistic tests are carried out?.....	18
5	Technical Data.....	19

## **1 Introduction**

Valued **TRIGON** - Customer,

We are excited that you have chosen to purchase the **EXXCEED** integrated amplifier.

This unit was built using the highest quality control to insure utmost precision in manufacturing.

Whether you are a beginner to High-Fi or advanced user, it is highly recommended that you read and understand this User's Manual thoroughly before using your new integrated amplifier.

Be sure to keep this manual easily accessible as it could come in handy during normal use of this amplifier.

We hope that you enjoy your new amplifier and thank you for choosing **TRIGON**.

## **2 General Description**

The **EXXCEED** is a High-End integrated amplifier with 9 inputs (CD-Player, Tuner, TV etc.). There are 4 analogue inputs and 4 (5) inputs for digital devices.

The integrated PHONES amplifier is able to drive headphones with an impedance between 30 and 250 Ohm. The powerful analog output stage can drive loudspeakers with an impedance from 3 ohms. The **EXXCEED** can be operated via two rotary knobs and four touch sensors as well as the optionally available IR remote control **DIRECTOR PREMIUM**.

The LED displays are customizable to your personal needs. The TFT display informs you about all settings. The color of this display is individually adjustable.

The massive housing of the **EXXCEED** consists of 2mm steel plate as well as a 10mm strong aluminum front panel. The device feet work according to the principle of a plate spring and decouple the Exxceed effectively from the stand. Due to this elaborate housing design, sound effects are minimized through microphony.

### **2.1 Safety Information**

**TRIGON ELEKTRONIK GMBH** will not assume any responsibility for damages occurred from unsafe handling of the product or from not adhering to the recommend safety instructions below.

- The amplifier should not be used un-monitored in close proximity to heat producing devices such as Water heaters, Fireplaces or Flammable materials.
- The amplifier is not designed to withstand heavy impacts or severe vibrations.
- The amplifier should not be used un-monitored when being transported from a cold environment into a warm room.
- The amplifier should not be used when placed out in direct contact with the Sun.



- Insure that the installation location for this product has adequate ventilation.
- The amplifier should not be doused with any type of liquid. It is imperative that no liquid get inside the unit.
- Never use this product without the shielded top cover installed.
- Before removing the top cover always insure that the AC cord has been removed from the AC outlet and that the product has sat to drain any residual current.
- Never short any of the fuses. Replace broken fuses only with original fuses of the same value and type.
- Do not attempt to service this unit. Repairs are only to be done by authorized service centers or through the factory direct. Any such unauthorized repairs will result in a voided warranty.
  - Always make sure that your complete audio system is shut off before changing any cables or connecting any other components.

The **EXXCEED** is set at the factory to be operated in **230V AC**. Contact your local dealer or **TRIGON** directly if you should need a different voltage version.

## 2.2 Installation Information

During unpacking, please inspect the unit for any potential transportation damage. If you notice any damage, please get in contact with your dealer.

Confirm the contents of the box. In addition to the **EXXACT**, you should also have the following:

User's Manual  
 Warranty Card  
 Power cord

Place the unit on a dry, level surface. Be sure that the unit has good ventilation around it. Strong magnetic fields commonly found in amplifier transformers and halogen light transformers can induce hum into a system. Because of this, it is best to place the unit a reasonable distance from such devices. Also, the audio interconnects should not be run in parallel to AC power cables as this can also induce noise.

Hum is also produced from light bulbs. It is best to place audio equipment at least 3 feet away from them.

Try to utilize natural light and make sure not to use the **EXXCEED** unmonitored next to heat sources.

## 2.3 Warranty and Service Information

In choosing the **EXXCEED**, you have selected a valuable and technologically advance product. We at **TRIGON** are trying to improve our quality control through all steps in the production cycle to insure that all **TRIGON** products meet our

quality expectations. If a problem is experienced, **TRIGON ELEKTRONIK GMBH** offers a three-year warranty. This warranty covers repairs for any manufacturing defects.

It does not cover damages that are the result of neglect or misuse. It also is considered void if unauthorized personnel do any repairs or modifications. Any alterations to the serial number, or transportation damage are not covered as part of this warranty.

### 3 Initial Setup

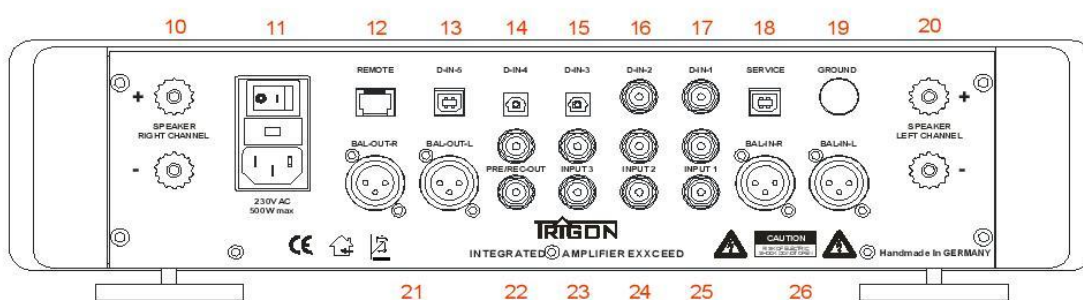
After unpacking the amplifier, the unit should warm up to the ambient temperature. Particularly in the cold season, moisture can also build up inside the case when the device comes from a cold to a warm environment. If the equipment has been acclimatized, we recommend that you familiarize yourself with your new **EXXCEED**.

**EXXCEED**  
front view



Plug the **TRIGON VOLT** cable into the **EXXCEED** socket (11) and connect the power plug to the power supply. Switch on the integrated standby power supply by pressing the switch (11) on the back of the **EXXCEED**.

**EXXCEED**  
rear view



**ATTENTION!!!** Before you start with the wiring, however, you should switch off the **EXXCEED**, as well as the other devices of your system, as always when working on the cabling. Avoid plugging into a UNBAL INPUT when the **EXXCEED** RCA plug is plugged in. Unfortunately, these connectors first connect to the signal contact and then connect to the neutral feedback (ground), which usually results in a very strong hum, which can destroy the amplifiers and / or your speakers!

## 3.1 Front Panel Controls and Display

We tried to design the number of control elements according to the formula "as much as necessary, as little as possible". In addition, it was important to us during the conceptualization that the amplifier in the basic functions remains as simple to operate as possible and can be operated intuitively. So everyone will immediately assign the function of the volume setting to the large right rotary knob (8)

The rotary knob (1) on the left is used to select the inputs and the **EXXCEED** is switched on or off with the sensor button (7).

### The elements in detail:

#### (1) Inputselector

This knob selects the input. The selected input is shown in the display (9). The name of the individual inputs can be set individually. (See also 5.9)

#### (2) IR-Window

Behind this disc is the infrared remote control receiver.

#### (3) Headphone jack

A 6.3mm jack plug of a headphone can be plugged into this socket. The impedance of the headphone should be between 32 and 250 ohms.

If you want to switch off the playback via the loudspeakers while you are using the headphones, tap the sensor field (4). The LED above the headphone connector lights up and indicates that the loudspeakers are now switched off.

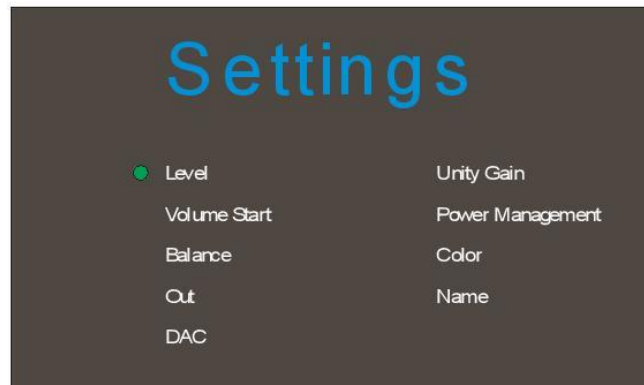
To reconnect the speakers, tap the sensor field again (4). The LED above the headphone jack goes out, the volume is reduced to the power-on level, and the speakers are reconnected.

#### (4) Sensor Key SPK On/Off

The speakers can be switched on or off at this sensor field. When the loudspeakers are switched on, a dot on the left before the label "SPK" appears in the lower right corner of the display (9).

#### (5) Sensor Key MENUE

The **EXXCEED** has extensive settings. Touching the **MENUE** button will take you to the Settings menu.



The following settings are available:

Level	(3.2.1)	Unity Gain	(3.2.6)
Volume Start	(3.2.2)	Power Management	(3.2.7)
Balance	(3.2.3)	Color	(3.2.8)
Out	(3.2.4)	Name	(3.2.9)
DAC	(3.2.5)		

#### (6) Sensor Key MONO

This button can be used to switch the mono function on or off. If MONO is activated, a dot appears in the lower right corner of the display before the "MONO" label. In addition, the last LED of the volume indicator lights up.

#### (7) On/Off Key

If the main power switch (11) on the back of the device is switched on, the Exxceed is switched on or off. Tap your finger on the circle icon under the label On / Off. Within the circle, an LED is lit and as soon as you remove the finger, the Exxceed turns on or off. When the power is off, the LED above the keypad will turn red (standby) and green when the keypad is in the state.

During the power-up process, the color of this LED flashes between yellow and green. As soon as the switch-on process is completed, the LED is constantly green.

**REMARK:** We have equipped the Exxceed with a very power saving standby power supply. The power consumption in standby mode is less than 1 watt. You can always connect the Exxceed to the power supply in standby mode without switching it off completely with the mains switch (11).

If, however, you do not want to use the Exxceed for a longer period of time (holidays, etc.), you can also switch off the power supply completely with the switch (11). In the case of severe storms with a risk of lightning, it is also recommended to disconnect the mains connection, ie pull the mains plug!

#### (8) Volume knob and volume indicator, mute function

This button is used to adjust the volume. The adjusted volume is indicated by the LED's arranged around the volume knob.



Pressing the volume button invokes the mute function, i. the volume is set to a minimum value. When the mute function is activated, a dot appears in the lower right corner of the display before the name "Mute".

Pressing the rotary knob again or turning the volume knob will cancel the mute function and restore the previous volume level.

## (9) Display

The Exxceed is equipped with a TFT display, which informs about all settings. The text colors can be set individually in the "Settings → Color" menu. If you want to switch off the display completely, you can set this in the menu "Settings → Power Management".

## 3.2 Settings

**Note:** All the descriptions below assume that you have already switched on the settings menu as described above.

### 3.2.1 Level

In this menu, you can individually adjust the volume (level) for each input to minimize volume differences when switching to another input. Since only a lowering of the levels can be made, the input with the lowest level should be selected as reference. All other inputs are then tuned to this input.

- Use the input selection switch (1) to select the Level sub-menu
- Press the input selector (1) to enter the company level
- Turn the input selector until you reach the input you want to set.
- Use the volume knob (8) to adjust the level. To be able to compare the level with the "reference input", use the input selection switch (1) to set this input again. Proceed with all other inputs.
- To exit the submenu "Level", press the input selector (1) once and return to the "Settings" menu.

To return to the standard interface and exit from the setup menu, tap the Menu (5) button.

### 3.2.2 Volume Start

The **EXXCEED** has an electronic volume setting. In this submenu, you can adjust the volume that is set when the **EXXCEED** is turned on.

- Use the input selection switch (1) to select the **Volume Start** submenu
- Press the input selector (1) to enter the **Volume Start** submenu
- Use the volume knob (8) to adjust the desired startup volume
- Press the input selector (1) again to exit this submenu.



### 3.2.3 Balance

In this submenu the stereobalance can be adjusted.

- Use the input selection switch (1) to select the Balance sub-menu
- Use the volume knob (8) to adjust the stereo balance
- Press the input selector (1) again to exit this submenu

### 3.2.4 Out

In this submenu, you can turn the headphones connection (Phones) on and off, and you can specify how the preamp output PRE / REC-OUT (22) should be connected.

**Turn on or off headphones:**

- Use the input selector (1) to select the **Out** submenu
- Press the input selector (1) to enter the **Out** submenu
- Use the input selector (1) to select **Phones**
- Use the volume knob (8) to turn on or off
- Press the input selector (1) again to exit this submenu.

**Selecting Record or Preamp Out:**

- Use the input selector (1) to select the **Out** submenu
- Press the input selector (1) to enter the **Out** submenu
- Use the volume knob (8) to select PreOut or Record
- Press the input selector (1) again to exit this submenu.

### 3.2.5 DAC

In this submenu different filters can be switched on with the integrated digital-analog converter. Select the filter that you like best.

- Use the input selector (1) to select the **DAC** submenu
- Press the input selector (1) to enter the **DAC** submenu
- Use the volume knob (8) to select one of the four filters
- Press the input selector (1) again to exit this submenu.

### 3.2.6 Unity Gain

With this setting, the volume control of the selected input is bridged. This setting is required when the **EXCEED** is operated within a multi-channel system. Unity gain is only available for the analog inputs.

**Enable Unity Gain:**

- Use the input selector (1) to select the **Unity Gain** submenu
- Press the input selector (1) to enter the **Unity Gain** submenu
- Use the input selection switch (1) to select the analog input to which your multi-channel amplifier is connected.
- Turn the volume knob (8) to the right until "Unity Gain [the selected input] is on".
- Press the input selector (1) again to exit this submenu.

**Unity gain** is now activated for the selected input. This input is highlighted in the standard screen. Whenever you switch to this input, the volume is automatically raised until the unity gain level is reached.

If, in spite of all the care, you have accidentally activated **Unity Gain**, and if this is not the case, you can adjust the volume manually by turning the volume knob (8). Note, however, that the **Unity Gain** setting remains stored until you are deactivated.

#### **Disable Unity Gain:**

- Use the input selector (1) to select the **Unity Gain** submenu
- Press the input selector (1) to enter the **Unity Gain** submenu
- Use the input selection switch (1) to select the analog input with which **Unity Gain** is activated.
- Turn the volume knob (8) to the left until "**Unity Gain** [the selected input] is off".
- Press the input selector (1) again to exit this submenu.

Now UnityGain for this input is switched off again.

### **3.2.7 Power Management**

In this submenu, you can set the following:

- (3.2.7.1) Display Timeout
- (3.2.7.2) LED-Brightness
- (3.2.7.3) Power Timeout
- (3.2.7.4) Remote Power

#### **3.2.7.1 Display Timeout**

Here you can switch the display on and off. However, the display will always turn on again when you make changes to the device (e.g., other input). The time (timeout), which should remain on the display, can be set here. A timeout between 3 and 255 seconds can be set.

- Use the input selection switch (1) to select the **Power Management** submenu
- Press the input selector (1) to enter the **Power Management** submenu
- Use the input selection switch (1) to select **Display Timeout**
- Use the volume knob (8) to set the time between 3 and 255 seconds. In position "**Off**", the display timeout is switched off and the display is permanently switched on again.
- Press the input selector (1) again to exit this submenu.

#### **3.2.7.2 LED-Brightness**

Here you can adjust the brightness of the LED volume display.

- Use the input selection switch (1) to select the **Power Management** submenu
- Press the input selector (1) to enter the **Power Management** submenu
- Use the input selection switch (1) to select **LED Brightness**
- Use the volume knob (8) to adjust the brightness in steps between 0 and 20.
- Press the input selector (1) again to exit this submenu.

### 3.2.7.3 Power Timeout

The **EXXCEED** has an adjustable automatic shut-off device. The time until the Exxceed switches off is adjustable between 10 and 255 minutes. The shutdown time also depends on when the last audio signal was played back. From this point onwards, the timer starts counting down the set time and then turns off the device. If, however, an audio signal is reproduced again within this time, the timer is reset to its initial time.

- Use the input selection switch (1) to select the **Power Management** submenu
- Press the input selector (1) to enter the **Power Management** submenu
- Use the input selector (1) to select **Power Timeout**
- Use the volume knob (8) to set the time between 10 and 255 minutes. In Sell "Off", **PowerTimeout** is switched off.
- Press the input selector (1) again to exit this submenu.

### 3.2.7.4 Remote Power

The **EXXCEED** can provide a 10V DC voltage to the socket (12) for remote switching of other devices that can be turned on or off by means of such a control voltage (e.g., active subwoofers). If **Remote Power** is switched on (On), this control voltage is present at the socket (12) whenever the **EXXCEED** is switched on. If you want to switch off the remotely switched-on device (for example, to listen to music with headphones), you can also switch off the control voltage in this submenu.

- Use the input selection switch (1) to select the **Power Management** submenu
- Press the input selector (1) to enter the **Power Management** submenu
- Use the input selector (1) to select **Remote Power**
- Switch on the control voltage (On) or Off (Off) with the volume knob (8)
- Press the input selector (1) again to exit this submenu.

### 3.2.8 Color

The text colors of the display can be set individually at the **EXXCEED**.

- Use the input selector (1) to select the **Color** sub-menu
- Press the input selector (1) to enter the submenu **Color**
- Use the input selection switch (1) to select the "Headline, Text or Selection" function
- Use the volume knob (8) to change the color setting. The selected color is displayed for checking in a small square
- Press the input selector (1) again to exit this submenu.

### 3.2.9 Name

You can assign individual names to the inputs. Each name can consist of seven characters.

- Use the input selector (1) to select the submenu **name**
- Press the input selector (1) to enter the submenu **name**



- Use the input selection switch (1) to select an input (left text column) that you want to change
- Use the volume knob (8) to select the letter position. Press the volume knob (8).
- Use the volume knob (8) to select the character you want to use
- Press the volume button (8) again to fix the character.
- Use the volume knob (8) to select the next letter position and confirm by pressing the volume knob (8)
- Use the volume knob (8) to select the character you want to use
- Proceed with all other characters
- Finally, press the input selector switch (1) to exit the submenu **name**

### 3.3 Rear Panel Connections

#### (10 & 20) Loudspeaker Binding Posts

The loudspeaker cable can be connected to the two binding posts of that terminal. The positive output terminal is in the top row, the negative is in the bottom row. Make sure that no loudspeakers with an impedance of less than 3 Ohm are connected. Never short-circuit the binding posts in order to avoid damage to your integrated amplifier.

#### (11) Power Connection, Power Switch and Fuse

**Stanby Power Switch:** This switch is used to connect the network connection to the **EXXCEED**. However, the **EXXCEED** is only switched on completely by pressing the button (7).

**Fuse:** Here is the fuse. Only one fuse with the same value may be used!

**Power Socket:** The power cable is plugged in here. Always pay attention to the correct mains voltage. The **EXXCEED** is set as standard for a mains voltage of **230 V AC**. If the **EXXCEED** has been set up for other mains voltages, there are corresponding indications (labels) on the device.

#### (12) REMOTE

A 10V DC voltage is applied to this socket as soon as the Exxceed is switched on. This control voltage can be used for the synchronous switching on or off of external devices (for example active subwoofers) if these devices have an appropriate input.

#### (13) USB Digital Audio Input (USB)

A computer or Mediaplayer can be connected to this socket. With the appropriate playback software, high-resolution audio files can be played back in PCM or DSD format.

#### **(14 & 15) Optical Digital Audio Inputs (Digital-3, Digital-4)**

Digital sources (according to the SPDIF standard) can be connected to these two sockets via fiber optics. (E.g., TV set)

#### **(16 & 17) Digital Inputs (DIG-1, DIG-2)**

Digital sources (according to the SPDIF standard) can be connected to these two sockets. (E.g., CD player)

#### **(18) SERVICE**

A Mediaplayer (CHRONOLOG) from our company can be connected to this USB port. This gives the possibility to control the **EXXCEED** by tablet, smartphone or PC in its basic functions (volume, input selection).

#### **(19) GROUND**

In some countries it is necessary to separate the metal housing of the **EXXCEED** separately. This addition can be attached to this contact.

#### **(21) BAL-OUT-R, BAL-Out-L**

The preamp output signal is applied to these jacks in a symmetrical form.  
(Pin1 = GND, Pin2 = Pos, Pin3 = Neg)

#### **(22) PRE/REC OUTPUT**

At this output the unbalanced preamp output can be picked up before the volume control (RECORD function) or after the volume control (PREAMP function). The setting is made in the "Settings → Out" menu.

#### **(23 & 24 & 25) Analogue Input Jacks (Input-1, 2, 3)**

Analogue high-level source devices can be connected to these sockets.  
(e.g. Tuner, CD-Player, etc.)

#### **(26) Analogue Input Jacks, balanced (Bal-In)**

Analogue high-level source devices with balanced outputs (XLR) can be connected to these sockets.

### 3.3 Quick Start Manual

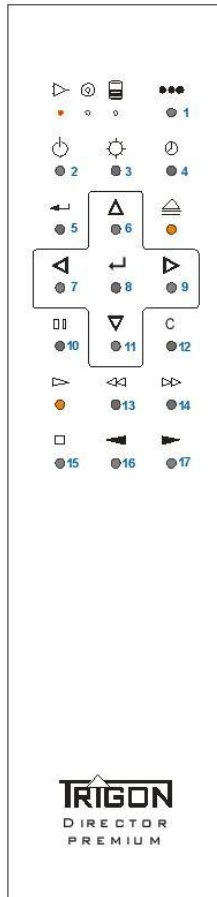
For the very impatient of you, who have already gained some experience with the use of high-end amplifiers, there is a short introduction to the speed-up.

- Cabling (connect sources and speakers)
- Connect the appliance to the mains and switch on the mains switch (11) on the back
- Press the On/Off button (7)
- Select the source device with the input selection switch (1)
- Ready for operation
- Use volume knob (8) to set the listening volume



### 3.4 Exxceed and the Remote Controller **DIRECTOR PREMIUM**

Of course, the most important functions can also be operated with the Trigon infrared system remote controller **DIRECTOR PREMIUM**.



The figure shows the remote control **DIRECTOR PREMIUM**. Since it is a system remote control, it can be operated by three different devices from our company.

The device to be operated can be selected with the (1) button. An LED indicates which device has been selected. Each press of the button (1) changes the device selection. The LED always lights up briefly to acknowledge the pushbutton.

To operate amplifiers, the first LED in the series must be set, as shown in the illustration on the left. Two keys (shown here in orange) have no function for the **EXXCEED**.

#### The functions in detail.

**Button (2): On/Off** - Here the **EXXCEED** can be switched on or off.

**Button (3): LED Brightness** - The brightness of the LEDs for the volume display can be set in several steps.

**Button (4): Display Timeout** - The timeout for the display can be switched on here. If this function is activated, the display goes out approx. 1.5 seconds after the last operation

**Button (5): Back** – Return to the level menu.

**Button (6 & 11): up, down** – When the main screen is active, the input can be selected with these buttons.

If the Settings menu is selected, you can use these buttons to navigate to the submenus.

**Button (6 & 11): up, down** – These buttons are also used to navigate the various submenus in the [Settings](#) menu.

**Button (8): MONO, selection confirmation** – When the main screen is active, this button can be used to switch the mono function on and off.

In the [Settings](#) menu, the selected sub-menu is selected with this key.

**Button (10): Speaker On/Off** – This button is used to turn the loudspeaker outputs on and off.

**Button (12): Settings Menü** – This button is used to switch the settings menu on and off.

**Button (13 & 14): Volume up, down quickly** – Use these buttons to reduce or increase the volume by 10 steps.

**Button (15): Mute-Function** – This button is used to turn the mute function on and off.

**Button (16 & 17): Volume- , Volume+** – Use these buttons to adjust the volume.

**NOTE:** The function "Volume" (key 16 and key 17) is always active for the amplifier mode, regardless of which device the remote control is currently set to.

## **4 What to do, if...**

This chapter is designed to help diagnose and trouble-shoot some of the most common errors.

### **4.1 ... unit doesn't turn on?**

- Is the AC plug from the Power supply connected properly to the AC outlet? – *Secure connection.*
- Does the AC outlet that you have the power supply connected to have current, or is it possible that the fuse for that outlet has been blown? – *Test the fuse for that AC outlet at the house fuse box.*
- Is the power switch (11) at the rear side switched ON? – *Switch it ON.*
- *Is the internal fuse blown? – Contact your dealer.*

### **4.2 ... no sound is produced?**

- *Is the correct input selected? - Select the correct input.*
- *Does the source provide a signal at all? - Check sources.*
- *Are the loudspeaker outputs switched off? - Turn back on.*
- *Is the mute function activated? - Switch the mute off.*
- *Has an electrostatic discharge occurred on the device? - Sometimes it can happen, especially in the winter months, when the air humidity is low, that your clothing is electrostatically charged and this electrostatic voltage is suddenly broken when the amplifier is touched. During such discharges, the microprocessor integrated in the **EXXGEED** can "crash", which is similar to that of computers. In this case, the **EXXGEED** may shut down the output relay or stop responding. Disconnect the **EXXGEED** for about 10-20 seconds from the power supply by turning off the power switch (11) on the back of the **EXXGEED**. As a rule, the device will then function properly again.*

### 4.3 ... there is a hum?

*Are all the connections fastened securely? – Test all cable connections.*

Sometimes multiple problems can contribute to a magnetic reception, which will result in a system hum. To fix these types of problems, it is recommend that you contact your local dealer who has many years of experience in trouble shooting such issues.

*It only hums when the tuner, the video recorder or the TV is connected to the **EXXCEED**. - All these devices are connected to an antenna that is itself grounded. This problem can also be related to a magnetic reception. In this case however, the resolution is quite simple. Use of a shielded power filter on the antenna can reduce or eliminate this hum. These types of shielded power filters are readily available at most HiFi or Radio stores..*

### 4.4 ... unrealistic tests are carried out?

The **EXXCEED** integrated amplifier has been designed to operate under normal real conditions intended for audio amplifiers. Only in this way it will be able to produce high quality playback of audio signals. Unrealistic tests, such as listening to an unoccupied input at full volume, only result in a nonsense noise and noise signal, which is normal under such conditions. Also quickly successive actuation of the control buttons or rotary switches at the **EXXCEED** or also at the remote control has no realistic meaning or purpose and produces only malfunctions, without having any benefit or symbolizing a quality feature.

So that you can enjoy your audio system for a long time, it should be operated as intended.

## **5 Technical Data**

<b>Inputs</b>	: 5x analogue, 4x digital SPDIF : optional 1x USB-HiRes Audio PCM/DSD
<b>Input Impedance</b>	: analog 47 KOhm
<b>Input Sensitivity</b>	: 0,5V (analogue)
<b>Output Power</b>	: 2x 100 / 170 W at 8/4 Ohm
<b>Damping Factor</b>	: >100 (at 8 Ohm 1KHz)
<b>Distortion ( THD + N)</b>	: < 0.015%
<b>Outputs</b>	: 1x Speaker, 1x Phones, : 1x unbalanced Line Out / Rec Out, : 1x balanced XLR Pre Out
<b>Bandwidth</b>	: digital Inputs 20 Hz – 22kHz (-3dB) : analogue Inputs 5Hz – 250kHz (-3dB)
<b>Signal Noise</b>	: > -86 dB at 1 Watt at 4 Ohm
<b>Noise (A-filtered)</b>	: > -92 dB at 1 Watt at 4 Ohm
<b>Weight</b>	: 18,3Kg
<b>Dimensions</b>	: 440 x 110 x 380 mm ( BxWxD )

01.2017 Änderungen vorbehalten

**Designed and Manufactured by:**

**TRIGON ELEKTRONIK GMBH**

Crumbacher Str. 60  
D-34277 Fuldabrück - Bergshausen

Tel. +49 (0) 561/20753880  
Fax +49 (0) 561/20753888

e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)  
web: [www.trigon-audio.de](http://www.trigon-audio.de)

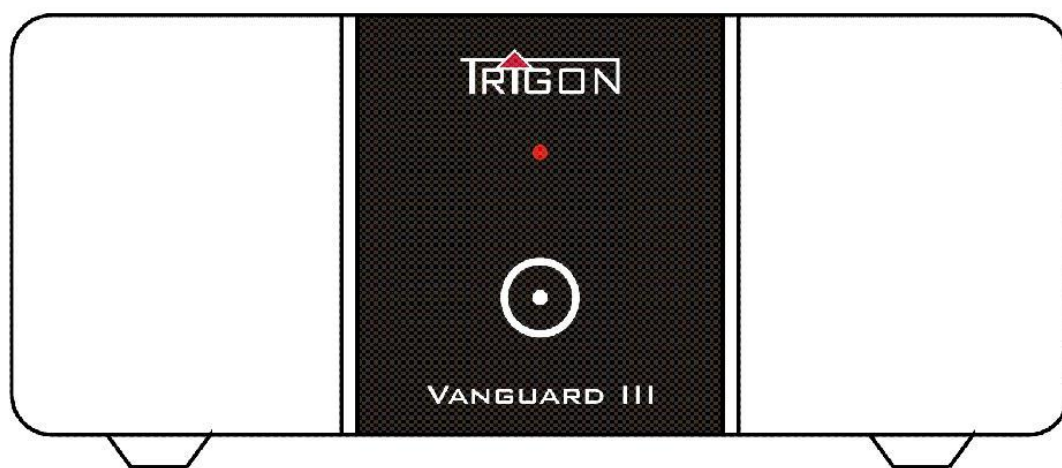
**Designed and Manufactured by**



## OPERATING INSTRUCTIONS

FOR PHONO PREAMPLIFIER

### VANGUARD III





## Analogic

Even more than two decades ago, so the propagandists of the new medium Compact Disc wanted it, the record had retired. The number of sold records removed from year to year, those of the CD's increased, until apparently now eternally of yesterday ones and the nostalgic people at unexplainable expenditure maintained and supplemented their record collections and had still no CD player. Yes, in addition maintained they their record player makes more music... and harvested a pitiful smile.

But parallel to this development remarkable happens - and the smiled at record lover and convinced analogue fan formulated not without sneers:

"The claiming already in the year 1980 perfect CD player is constantly improved and to the yardstick of this striving the music rendition becomes similar good analogue record player but not only this. At public demonstrations once CDs were thrown in the surprised public for the demonstration of the insensitivity by Compact Discs then today the realization made itself broad that they want to be treated just as carefully as records, even more, demagnetised, frozen, painted or ground and with coatings provides to sound only correct to be supposed. A similarity or an agreement with living disk washing machines, pucks, disk platelayers and needle cleaners is purely coincidental and not intended.

If the first CD Player made music apparently still in each situation in life and on each underground perfectly, then its descendants received beside constantly improved digital/analogue transducers always more complex housings, damping and, a beggar who thinks bad thereby, sub chassis drives or belt drives.

Almost exorbitantly expensive CD drive assemblies with separate digital/analogue transducers recruit for itself with the statement, now, finally, in such a way to sound like the best record players. But the uneasiness, which in-crept in things CD in the course of the years, seems remained. New digital formats, like SACD and DVD, urge on the market and are to now reach, what was already promised twenty years ago: "SACD has a transmission range as large up to 64 times as the CD. Thus results a refinement of the signal, which corresponds to analogue technique. (dpa/dwe, 14.11.2001)

We consider the evaluation of memory procedures, which work with data reduction, before this background simply renounce able. Rational at this newest stage of the development of digital music storage media, which increases not the transmission range, but the scanning rate, is the insight that people had underestimated substantially the quantity and quality of musical information from the record groove, once again the new wasn't even the. In the age of the permanent announcement of technical sensations and revolutions we form an analogy: High End Audio won't invent each month again. Persistent, consistent advancement **and** innovation in smaller and larger steps, which is relevant before the introduction on the market, define High End for us at the last state of things.

What now? Sell all CDs as once unfortunately, the record collection? Perhaps the view continues to help that tone carriers and their artful packing are more than only technical, exchangeable canned goods. The speech is about cultural properties and time documents, which are not to be excluded straight from the individual Biography. In this regard the record already furnished the proof of their, also technical, longevity as canned goods, that of the CD isn't done yet. There it is nevertheless reassuring that in the year 2001 the number of the sold records doubled itself to more than in relation to the previous year. (dpa/dwe, 14.11.2001).

The latter makes at the same time hope for a further creative next to each other, which we, apart from the conservative aspect, agree with. Because like the attempt of the CD to be finally records heir had lead to ever better CD-players, without which already in view of the existing software only few can to do and want seriously, then the competition of the new medium has the similar record rendering again accelerated and on, at the gloss times of the old tone carrier,



a probably non-existing level elevated. Never before there were as good drive assemblies, tone arms and pick-up systems as today. Oh, and phono amplifiers with which we would be finite with the topic.

How little has to do the complex task of an equalizer pre amplifier with pure opinion, you'll be told in the next chapter. Who doesn't want to know it so exactly **first**, may skip this chapter, but only this, to find out, how the Vanguard III wants to be up and adjusted, attached, served and treated, thereby it can help to transform the high-quality, but sensitive phono signals of your records in the best possible way into music and to thank you itself in our name for your investment.

### **Little phono technology and technical description of the Vanguard III**

With the Vanguard III concerns it a phono pre amplifier for the equalization and reinforcement of signal voltage coming from a record player.

Signal voltage coming from a pick-up system is unfortunately not as with CD-players or other audio devices over the shown frequency range linear, but contained with 20 cycles per second approx. 1000 times smaller signal than with 20 kHz. Without equalization the music would therefore sound itself extremely full of high tones.

The task of the phono amplifier or better said the equalizer pre amplifier is it now to produce a linear audio signal from this bent rendition characteristic, i.e. with all shown frequencies equivalent loud.

Thus however not enough, the signals of the pick-up systems are also still very weak (or quietly), so that a relatively high reinforcement is needed to raise the audio signal to the level, which is usually available with all other audio sources (except microphones). With MC pick-ups the task of the equalizer pre amplifier is more fastidious, because the output voltage of these systems is usually lower even again around the factor 10 (i.e. 20dB) than with MM pick-ups.

Furthermore the different pick-up systems need also another appropriate feed impedance, which can be adapted individually for each pick-up, to be able to unfold their qualities complete.

The demands, which are made against a phono amplifier, therefore are:

- 1. Exact equalization of the input signal**
- 2. High, adjustable reinforcement**
- 3. Individual adjustment of the feed impedance**

The first task, **exact equalization of the input signal**, can be mastered only if you use highly exact construction units in the equalizer part of the phono amplifier. Therefore we measure each construction unit for this stage with highly precise measuring instruments. The values of the assigned construction units are selected here on a deviation from less than 1%! Identical pairs of construction units are always formed for the two stereo channels, to exclude channel inequalities. In this way the Vanguard III produces an almost perfectly linear output voltage.

The second task, **high, adjustable reinforcement**, represents a problem of completely different kind. High reinforcement of the information signal means at the same time also high reinforcement of spurious signals. The main spurious signal is thereby the noise. This problem can be solved only satisfyingly with very efficient and at the same time low-noise amplifier stages. In the Vanguard III we use highly exact operation amplifiers, which besides exhibit extremely small distortion values.

The other spurious signal, which leads to problems in phono amplifiers again and again, is the so-called humming. This humming has usually three causes: Stray effect through nearby mains transformers, *careless* supply voltage and incorrect printed circuit board design. Over to avoid the stray effects by the mains transformer the power pack of the Advance is accommodated in a separate housing and so it can be set up in some distance to the set.

The printed circuit board design is characterised among other things by a special star shaped arrangement of the pig pus courses, so that humming signals cannot disturb the sensitive amplifier stages.

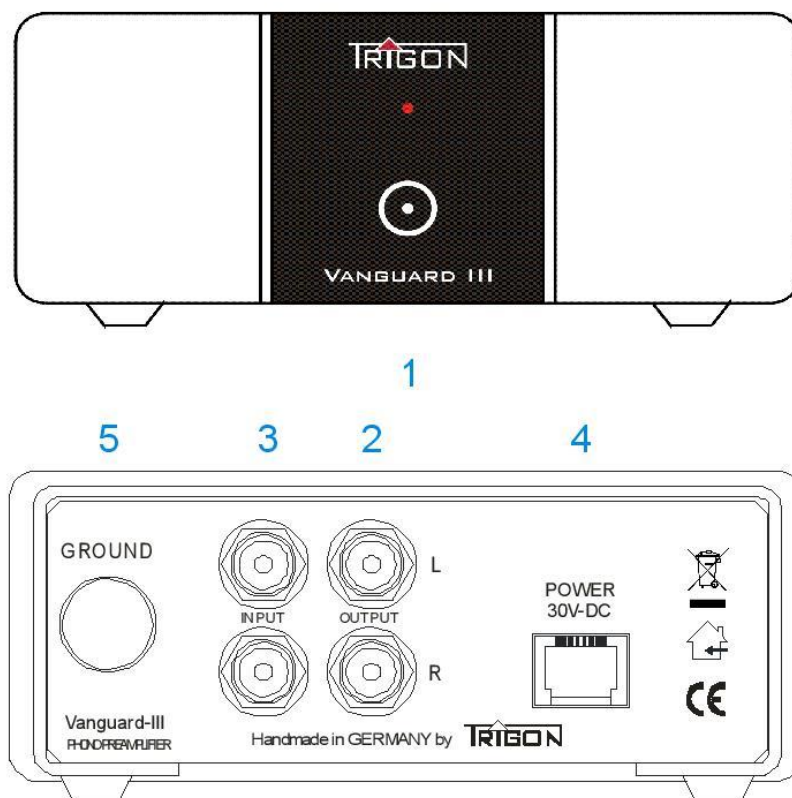
The reinforcement can be adjusted individually in 16 stages by small mini switches, which are attached on the lower surface of the set. With the help of that table indicated far down you could make the correct attitude for the respective pick-up system there.

The third task, **individual adjustment of the feed impedance**, can be settled with the Vanguard III by a mini switch on the lower surface of the set. Here are six different adjustment resistances and this means 64 combinations are for the adjustment of one MC pick-up and 2 capacities, so there are four combinations for the adjustment of a MM pick-up at the disposal. Information about all combinations gives a table indicated far down. You recognize already by the larger number of possibilities of adaptation of a MC pick-up that the Vanguard III treats MC pick-ups preferentially. The reason lies in the fact that the majority of the offered High-end pick-up systems are nowadays of the type MC.

Because the Vanguard III is a separate phono amplifier that is connected with the pre- rather full amplifier via link cable, there are also placed high requirements to the output stages of the amplifier. Here we have decided us for an output stage, which makes a sufficiently small output resistance available, so that also cables of more than 2m lengths can be attached. This makes it possible to set up the Vanguard III in direct proximity of the record player and to keep so the cable length between record players and Vanguard III very small. This is of importance, because short cables can minimize transducer losses and offer at the same time external influences less attack region, so that the anyway very susceptible, low signal of the pick-up is impaired as little as possible.

## The operation and wiring

In the picture down is shown the front and the back of the Vanguard III.



### 1. Operating key and control lamps

With a touch at the circle **(1)** the Vanguard III can be switched on and/or off. The red indicator LED over the circle signals the operating status.

### 2. Line OUT

The output signal rests against these sockets. Connect this exit with a high level or a line entrance of your pre and/or full amplifier. Prevalent are such entrances designated with AUX. But generally you could use the CD- or TAPE-entrance of the pre and/or full amplifier, too.

### 3. Line IN

At these sockets the record player (pick-up) will be attached. With the mini switches at the ground the feed impedance can be indicated adjusted, like shown in the table 1.

### 4. Power pack entrance socket

To this socket the ground power pack belonging to the scope of supply is attached. **Make first the connection between power pack and Vanguard III, before you connect the**

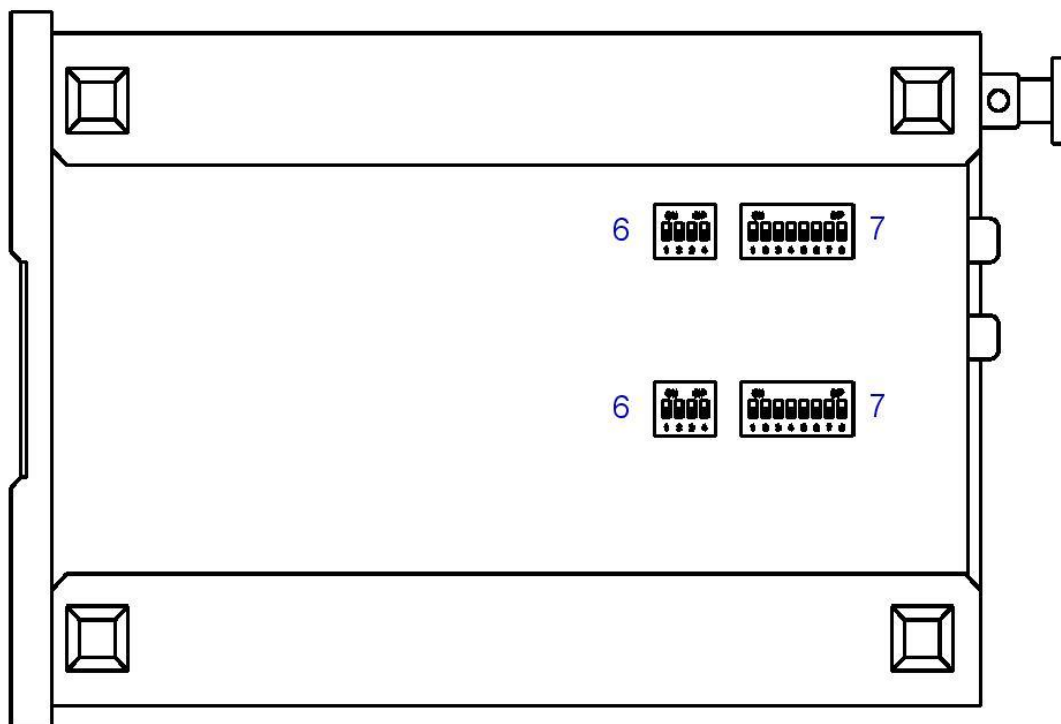
**power pack with the lighting system.** Thus it is guaranteed that it comes to no inadvertent short-circuits at the exit of the power pack.

## 5. Ground (ground terminal)

At this clamp the grounding- rather earth-cable, which is usually led out separately at record players, is attached. In most cases is at these grounding electrodes a fork-putting shoe. To be able to attach this *fork*, you untwist the knurled thumbscrew of the ground terminal a little and wedge then the *fork* through closing the knurled thumbscrew.

Simple stripped cable ends can be also attached by solving, after that they were put into the lateral drilling of the knurled thumbscrew and then likewise again with the knurled thumbscrew clamped.

Subsequent is the view of the ground of the Vanguard III with the channel separated mini switches for the reinforcement (6) and the feed impedance adjustment (7) illustrated.



## 6. Mini switch for the gain setting

With these switches for each channel the reinforcement is adjusted separately. For the attitude you use the following table as guideline assistance.

### Table of the switching positions for the gain setting.

With the four-fold mini switch for each stereo channel on the lower surface of the Vanguard III the reinforcement can be adjusted separated.

As this table shows, the reinforcement between 42 dB and 66.3 dB can be adjusted in 16 stages

**Reinforcement table for VANGUARD III**

S4	S3	S2	S1	Reinforcement in dB	For systems with the following output voltages
0	0	0	0	42	4mV
0	0	0	1	47.5	2.2mV
0	0	1	0	51.3	1.4mV
0	0	1	1	53.6	1.1mV
0	1	0	0	55	0.89mV
0	1	0	1	56.5	0.75mV
0	1	1	0	58.1	0.63mV
0	1	1	1	59.2	0.55mV
1	0	0	0	62.2	0.39mV
1	0	0	1	63	0.36mV
1	0	1	0	63.8	0.33mV
1	0	1	1	64.3	0.31mV
1	1	0	0	64.8	0.29mV
1	1	0	1	65.3	0.27mV
1	1	1	0	65.8	0.26mV
1	1	1	1	66.3	0.24mV

A 1 means: Switch placed on position ON

A 0 means: Switch not switched

If you do not find the exact value of the output voltage of your pick-up in this table, you could select the value, which comes next to your pick-up.

You reach in each case with the in the preceding table given attitudes a DIN-Output voltage of 500 mV. It's depended from the entrance sensitivity and reinforcement of your pre or full amplifier you need often only a clearly smaller output voltage to achieve the desired hearing volume. You should experiment in this regard because a lower reinforcement can be tonal more favourable.

Louder systems (output voltage more largely 8 mV) can be naturally also attached, however thereby the over-regulation reserve is reduced, i.e. it can come to the over-regulation of the amplifier, which expresses itself by higher distortions.

Quieter pick-ups (output voltage of small 0.24 mV) can be operated accordingly problem-free.

Frequently, pick-up manufacturer indicates the output voltage of their systems in the e.g. following way.

Output voltage = 1.2mV with 4.36 cm/s

The standardized output voltage refers usually however to a reference fast of 5.6 cm/s. In our case therefore the output voltage results to:

$$\text{Outputvoltage} = \frac{1.2mV}{4.36cm/s} * 5.6cm/s$$

Thus results an output voltage of approx. 1.54 mV, i.e. the reinforcement you should set the mini switch 2 to ON.

## 7. Mini switch for the feed impedance

These switches are adjusted separately for each channel the feed impedance. For the attitude you use the following tables 1.1 and 1.2 as guideline assistance.

**Table 1.1 of the switching positions for the entrance capacity**

Adjustment capacities can be connected to magnetic systems by depressing the switches S1 and S2. S3 to S8 are switched off with MM systems, because MM systems are usually operated at input impedance by 47KOhm.

S1	S2	S3	S4	S5	S6	S7	S8	Entrance capacity	Input impedance in ohm
0	1	0	0	0	0	0	0	100pF	47000,0
1	0	0	0	0	0	0	0	220pF	47000,0
1	1	0	0	0	0	0	0	320pF	47000,0

A 1 means: Switch placed on position ON

A 0 means: Switch not switched

The entrance capacity without connected capacity amounts to approx. 60 - 100pF with the Vanguard III.

Each capacity, which is connected, must be added to this entrance capacity. The cable capacitance of the cable connections between record players and preamplifiers must be added, too. Furthermore the cable capacitance of the cable in the tone arm pipe adds itself. In this way do values of more than 200pF - 300pF often already come without auxiliary capacities.

To be noted it should, however, that deviations by the pick-up manufacturer recommended of the adjustment capacity, in the order of magnitude of 20 - 30 % are acceptable, since during the production of pick-ups frequently similar tolerances develop.



**Table 1.2 of the switching positions for the input impedances**

100pF	220pF	1800	1000	470	220	100	47	
S1	S2	S3	S4	S5	S6	S7	S8	Input impedance computed in ohms
0	0	0	0	0	0	0	0	47000,0
0	0	1	0	0	0	0	0	1733,6
0	0	0	1	0	0	0	0	979,2
0	0	1	1	0	0	0	0	634,2
0	0	0	0	1	0	0	0	465,3
0	0	1	0	1	0	0	0	369,8
0	0	0	1	1	0	0	0	317,6
0	0	1	1	1	0	0	0	269,9
0	0	0	0	0	1	0	0	219,0
0	0	1	0	0	1	0	0	195,2
0	0	0	1	0	1	0	0	179,6
0	0	1	1	0	1	0	0	163,3
0	0	0	0	1	1	0	0	149,4
0	0	1	0	1	1	0	0	137,9
0	0	0	1	1	1	0	0	130,0
0	0	1	1	1	1	0	0	121,2
0	0	0	0	0	0	1	0	99,8
0	0	1	0	0	0	1	0	94,5
0	0	0	1	0	0	1	0	90,7
0	0	1	1	0	0	1	0	86,4
0	0	0	0	1	0	1	0	82,3
0	0	1	0	1	0	1	0	78,7
0	0	0	1	1	0	1	0	76,1
0	0	1	1	1	0	1	0	73,0
0	0	0	0	0	1	1	0	68,6
0	0	1	0	0	1	1	0	66,1
0	0	0	1	0	1	1	0	64,2
0	0	1	1	0	1	1	0	62,0
0	0	0	0	1	1	1	0	59,9
0	0	1	0	1	1	1	0	58,0
0	0	0	1	1	1	1	0	56,5
0	0	1	1	1	1	1	0	54,8
0	0	0	0	0	0	0	1	47,0
0	0	1	0	0	0	0	1	45,8
0	0	0	1	0	0	0	1	44,8
0	0	1	1	0	0	0	1	43,8
0	0	0	0	1	0	0	1	42,7
0	0	1	0	1	0	0	1	41,7
0	0	0	1	1	0	0	1	40,9
0	0	1	1	1	0	0	1	40,0
0	0	0	0	0	1	0	1	38,7
0	0	1	0	0	1	0	1	37,9
0	0	0	1	0	1	0	1	37,3
0	0	1	1	0	1	0	1	36,5
0	0	0	0	1	1	0	1	35,8
0	0	1	0	1	1	0	1	35,1
0	0	0	1	1	1	0	1	34,5
0	0	1	1	1	1	0	1	33,9
0	0	0	0	0	0	1	1	32,0
0	0	1	0	0	0	1	1	31,4
0	0	0	1	0	0	1	1	31,0
0	0	1	1	0	0	1	1	30,4
0	0	0	0	1	0	1	1	29,9
0	0	1	0	1	0	1	1	29,4
0	0	0	1	1	0	1	1	29,0
0	0	1	1	1	0	1	1	28,6
0	0	0	0	0	1	1	1	27,9
0	0	1	0	0	1	1	1	27,5
0	0	0	1	0	1	1	1	27,1
0	0	1	1	0	1	1	1	26,7
0	0	0	0	1	1	1	1	26,3
0	0	1	0	1	1	1	1	26,0
0	0	0	1	1	1	1	1	25,7
0	0	1	1	1	1	1	1	25,3

A 1 means: Switch placed on position ON  
A 0 means: Switch not switched

## Set-up recommendations

As well as almost all electronic devices the Vanguard III shouldn't be exposed to the direct sunlight, too. Because the set warms up a little when it is in operation, you should pay attention to sufficient circulating air.

A phono amplifier is a device with high signal reinforcement. Unfortunately such devices amplify also any spurious signals. One of these radiated spurious signals is the 50Hz-hum by the transformers. To keep this humming as small as possible, we accommodated the power transformer of the Vanguard III in a separate housing, so that you can set up this power transformer in some distance from the Vanguard III. Of course our efforts are useless if the Vanguard III is placed now on other sets with internal power transformers.

Therefore you mustn't to place the Vanguard III on other HiFi-sets. Pay attention to sufficient distance (at least 50 cm) to other mains transformers.

Particularly transformers of halogen light systems and power-output stages have a strong humming scattering field and should be therefore as far as possible from the Vanguard III.

A rule is: The more largely the mains transformers the more largely should be laid out the distance to phono amplifier.

Even mains cables or the net wiring in the wall are breakdown emitters. You receive the best results by sufficient distance to these *disturbers*.

According to our experiences an installation close to the record player is the best solution. So the critical cable connection between record players and Vanguard III can be kept short and spurious signals had only few chances to affect the low pick-up signal. At the same time short signal paths means always-smaller transducer losses, too, in particular with sensitive pick-up signals.

## Care references

**Never treat the set with a scrubbing means etc.** Easy contamination such as dust and finger marks can be wiped off with a fog-damp cloth or sponge. Water-dilute-cash contamination (jam, fruit juices, etc.) could be eliminated with a liquid household cleaner, especially with glass cleaners. Mineral oils as well as animal and vegetable fats are wiped off with white spirits or Isoprophylalkohol. Always make sure that no cleaning fluid arrives in the set inside.

The ground power pack you should be cleaned only with a fog-damp clothe or sponge and somewhat with a liquid household cleaner. Please pull the mains plug from the wall socket before cleaning the ground power pack. Make also sure that no cleaning fluid arrives in the power pack inside.

## Technical data:

Reinforcement	: 42 – 66 dB in 16 stages adjustable
input impedance	: from 25 ohm to 1800 ohm in 31 stages (see table)
	: without connected resistances 47KOhm
capacity	: Basic capacity = 60 – 100pF
	: insert able capacity = 100pF, 220pF, 320pF
entrance	: 1x Cinch
exit	: 1x Cinch
Distance of weighted noise voltage	: -73dB with 60dB reinforcement and
	: -95dB with 36dB reinforcement
frequency response	: + - 0,2 dB RIAA equalized
distortion factor THD + N	: 0,02%
Crosstalk attenuation	: -96 dBA with 10KHz
power input	: < 10VA
Dimensions h x w x d	: 55mm x 133mm x 192mm

Subject to change

Production and construction:

### **TRIGON ELEKTRONIK GMBH**

Crubacher Strasse 60  
D-34277 Fuldabrück  
Germany

Tel. +49 (0) 561/20753880  
Fax +49 (0) 561/20753888

e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)  
web: [www.trigon-audio.de](http://www.trigon-audio.de)

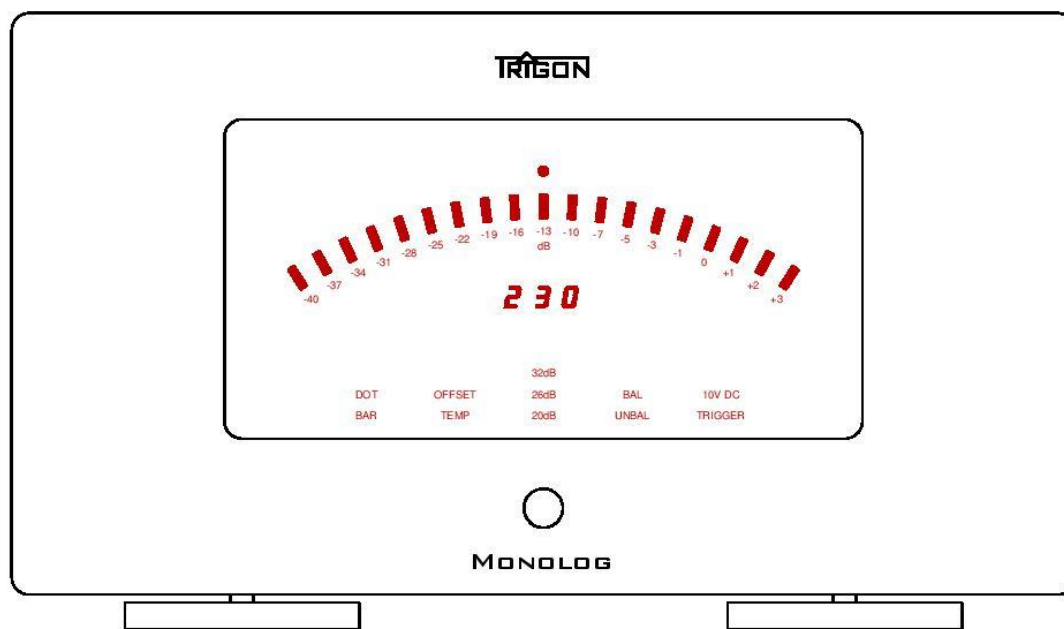
Kassel, July 2016



## OWNERS MANUAL

MONAURAL POWER AMPLIFIER

### MONOLOG



## **TABLE OF CONTENT**

- 1. Introduction**
- 2. General technical description**
  - 2.1 Safety considerations
  - 2.2 Installation
  - 2.3 Warranty and service
- 3. Operation**
  - 3.1 Front panel controls
  - 3.2 Rear panel controls and connections
- 4. What if...**
  - 4.1 ... nothing happens ?
  - 4.2 ... there's no sound ?
  - 4.3 ... it hums ?
- 5. Specifications**

## 1. Introduction

Dear **TRIGON** owner,

Thank you for purchasing a **MONOLOG** high-performance mono power amplifier from the **TRIGON PREMIUM LINE**. Our **PREMIUM LINE** defines the best seat in the house of authentic music reproduction, **MONOLOG** stands for the way music is played, with authority.

This audio component positions **TRIGON** at the state-of-the art of performance and craftsmanship. Timelessly elegant finish in aluminium and chrome, innovative circuitry and design, highest grade components and built quality are the hallmark of our **PREMIUM LINE**.

These mono-blocs of the **PREMIUM LINE** offer enough power to meet every musical challenge with virtually any loudspeaker. Owing to their outstanding power bandwidth they will flawlessly reproduce the pace and full dynamics of music signals. The inherent optimal channel separation ensures a 3-dimensional soundstage and a holographic image of the musical event, without any electronic limitation. The **MONOLOG'S** uncompromising circuit design approach doesn't stop at effortlessly rendering large scale performances. With maximum control of loudspeakers and exceptional resolution of even the finest details these precision instruments are equally at ease at low level listening, faithfully rendering musical textures and dynamics.

While we understand that you may be in a hurry to experience your music through your new **TRIGON MONOLOG** power amplifiers, we recommend that even the most experienced HiFi lovers carefully read the manual to fully understand these fine audio components and thereby maximize the return on your investment.

The **TRIGON** team wishes you much joy and great musical pleasure with your new **MONOLOG** power amplifiers.



## 2. General technical description

The **MONOLOG** is a high-performance audio component for domestic indoor use. This power amplifier is configured as a monobloc, therefore two components are needed for stereo applications. One of the significant advantages of this concept is the possibility to install each amplifier physically close to the corresponding loudspeaker and therefore minimize the length of the speaker cable. The use of short speaker cables along with longer line-level signal cables minimize loss of detail and maximizes control of the speakers by the amplifiers. This concept further enhances channel separation and therefore optimizes the rendering of the spatial qualities of sound reproduction. This principal also ensures that each amplifier has its own independent power supply which excludes any interference between channels through a shared power supply. Each monobloc amplifier has two 500 VA power transformers and over 80000µF storage capacity to ensure that sufficient energy is available to supply the output stages with ample current and stable voltages throughout the amplifiers entire design envelope.

The output stage is realized in bridged topology, which means that there are two completely independent amplifiers are contained within one monobloc amplifier housing. These amplifiers are configured in fully differential mode, with one amplifier driving one phase of the signal while the other is driving the opposite phase. The load is connected between the two amplifiers and acts as a “bridge” to complete the circuit. The advantage of this configuration lies in the fact that each pole of the loudspeaker is actively controlled by the electronic circuitry. This allows a much tighter control of the individual drivers to achieve a more linear impulse response and better contouring of the sound.

The amplifiers rear panel has two inputs, balanced and single-ended, switch able via an input selector “**BAL/UNBAL**”. The amplifier can be remotely turned on or off via a trigger input (RJ-45 connector, ca. 4-10V DC). This function is enabled via the “**AUTO**” switch also located on the rear panel.

A digital voltmeter on the front panel indicates the current mains input voltage. This function can also be switched off by a rear panel disabled switch.

A large VU-meter on the front panel displays the current output power. This meter is LED-based and very quick. This display can also be changed and/or disabled by a dedicated switch on the rear panel.

### 2.1 Safety considerations

**TRIGON ELEKTRONIK GMBH** will not be liable for any damage caused by improper handling or by lack of observing the following safety instructions and warnings.

The **MONOLOG** amplifier must not be installed close to heat sources such as heaters, radiators, light fixtures, fireplaces, stoves or open fire.

- The **MONOLOG** amplifier must not be exposed to shocks or strong vibration.
- The **MONOLOG** amplifier must not be powered up after being moved from a cold location into a warm environment. Condensation may form and could damage the appliance. Please wait until the unit is at room temperature and all possible humidity has evaporated before connecting the component to AC mains.
- The **MONOLOG** amplifier should not be exposed to direct sunlight. Do not spill any liquid on the **MONOLOG** amplifier. No liquid should ever be **present** inside the unit.
- **Never attempt to operate the component when any part of the chassis is removed.**
- **Before opening the chassis always disconnect the unit from AC mains and wait until all circuits are void of electrical charge.**
- **Never bypass any fuse. Replace any defective fuse only with the original type and value.**- Do not attempt to service the unit. All maintenance or repair work may only be performed by authorized and specially trained personnel. Any repair, modification or tampering by an unauthorized personnel will automatically void all warranty.
- Always power down the unit before connecting or disconnecting signal and/or speaker cables.
- Under all circumstances avoid electrically shorting the output connectors. A short circuit may lead to immediate destruction of the amplifier. Any damage caused by shorting the output is **not** covered by warranty.
- Loudspeakers with an impedance less than 2 Ohms are not recommended and should not be connected to this amplifier.
- Use only appropriate accessories recommended by the manufacturer.

The **MONOLOG** can be operated with AC mains voltages between **210** and **245 Volts**, normal value is **230 Volt**. For specific markets the amplifier can be adapted in the factory for 115V or 100V AC mains respectively. In this case, please contact your dealer, distributor or **TRIGON ELEKTRONIK G.M.B.H.** directly.

## 2.2 Installation

After unpacking please check the unit for any transport damage. In this unlikely event please contact your dealer immediately.

Inspect the contents of the package. Included with your **MONOLOG** amplifier you should find these items:

- **TRIGON VOLT** AC mains cable
- **MONOLOG** owners manual (1x per pair)
- Warranty card

Install the unit level in a dry and well ventilated location. For sonic considerations we recommend the use of a proper audio equipment rack or amplifier base. Strong

magnetic fields as produced by halogen light transformers among others may induce audible hum. Allow ample distance between the amplifier and any source of electromagnetic fields. Signal cables should not be run in parallel to AC lines. Hum can likewise be induced by fluorescent lights. A minimum distance of 1 meter (3 ft.) should be allowed. Avoid installing your **MONOLOG** amplifier in locations exposed to direct sunlight and in proximity to sources of radiant heat.

## 2.3 Warranty and service

Choosing a **MONOLOG** power amplifier you have acquired a carefully designed and technologically thorough product. At Trigon we pride ourselves to monitor every production phase to ensure that a product bearing our name has met countless quality control stages and all our components undergo rigorous final testing before it leaves the factory. Trigon Elektronik GmbH offers a 3 year warranty in the unlikely event, that, against all odds, one of our products does not perform flawlessly. This warranty is limited to the repair of any defective component and the involved labour cost. Any repair under this warranty is usually performed by Trigon Elektronik GmbH. The warranty does not cover any damage caused by improper handling and/or installation, user error, abuse as well as repairs, modifications or tampering by non-authorized personnel or third party. Altered serial numbers automatically void any warranty. Also excluded is transport damage, accidents as well as any liability beyond the repair of manufacturing defects.

Please make sure that the included warranty card is fully completed. The warranty takes effect at the time of delivery by an authorized dealer. Keep all transaction records and proof of delivery with the warranty card.

## 3. Operation and safety tips

Upon first unpacking the unit we recommend to power it up without hooking up any other device.

After a brief power up sequence (flashing **Status LED (1)**) you will hear the soft clicking of a few relays. The **MONOLOG** amplifier is ready when the front panel display is lit. Now is a good time to familiarize yourself with the features and functions of its various controls and connectors. Select the appropriate input (**BAL** or **UNBAL**) that you will be using later to hook up the preamplifier.

Once you are familiar with all functionalities of the **MONOLOG** amplifier (see also ch. 3.1 and 3.2) you are ready to start the hook up.

**CAUTION!!!** Before beginning the hook up you should – as always – verify that the **MONOLOG** amplifier and all other components are powered off! Under all circumstances avoid to connect a cable to the **UNBAL INPUT** of the **MONOLOG** amplifier while the unit is powered up, since this type of connector makes contact first on the signal (hot) side before the ground, which can lead to a loud hum that could



damage the amplifier and/or your speakers! The **MONOLOG** being a high power device, it is strongly recommended to act with great care. Please make sure that there are no potential shorts circuits in the speaker cables.

An integrated protection circuit checks the output of the amplifier when it is powered up. Should the load impedance be lower than 2 Ohms, this circuit will prevent turning on the amplifiers main power supply, and the **Status LED (1)** will flash. In this case the power amplifier should be turned off and all speaker connections should be checked for short circuits. If everything seems in good order, please refer to the speaker manufacturer. In the event that the loudspeakers have an impedance rating below 2 Ohms, they cannot be used with the **MONOLOG** amplifier.

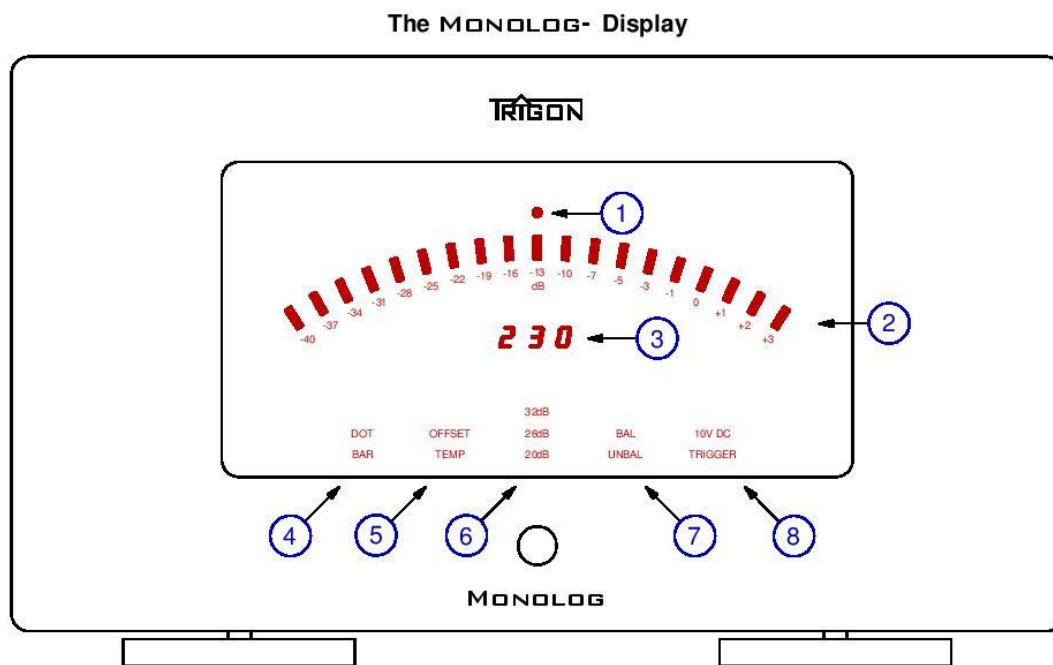
For technical reasons the impedance check cannot be performed during normal operation of the amplifier once the unit is powered up, meaning that there will not be another impedance check before the unit is turned off and powered up again. Shorts that occur during normal operation will not be recognized and could lead to damage or destruction of the amplifier. Once all connections are established, always turn on the preamplifier first and the power amplifier last. The power down sequence should be done in reverse order with the **MONOLOG** amplifiers being switched off first. This will prevent any audible pop from the preamplifier from being amplified, which could damage the speakers, given the high power output capability of the **MONOLOG** amplifier.

To ensure optimum longevity of the output relays, it is recommended to power the amplifier on or off without any programme material being played. This measure will prevent sparking in the relays and thus save the relay contacts from premature wear. Please bear in mind: the higher the output level, the greater the intensity of the spark. Such sparks will increase the contacts serial resistance with time and thus lower the amplifiers effective damping factor.

For cleaning purposes we recommend to use only a slightly damp lint-free cloth. If necessary, use a mild alcohol-free household cleaner. Avoid strong cleaning agents or detergents as they may degrade the finish. For safety reasons always disconnect the unit from AC mains and check all connections before restoring power to your **MONOLOG** amplifier.

**CAUTION!** Always make sure that no liquids are penetrating inside the chassis!

### 3.1 Front panel controls



A single control is found on the **MONOLOG** front panel: the **STANDBY/POWER** switch. This push button controls the microprocessor driven logic circuitry which in turn starts the soft power-up circuit limiting the rush-in current, the main power relays and the output stages. If you desire to use the **AUTO-POWER** function (see 3.2 “**AUTO**” switch), you need to depress the corresponding push button. When turned off, the **MONOLOG** amplifier is electrically disconnected from AC mains, thus it will not use any power.

#### [ 1 ] Status LED

This LED will light to indicate that the unit is turned on and functioning normally. A flashing **Status LED (1)** indicates a malfunction. Should the operating temperature of the unit reach its maximum permissible value the output relays will be automatically de-activated (no sound) and the **TEMP LED (5)** will be lit while the **Status LED (1)** blinks. Once the temperature returns to normal design parameters, the output relays will re activated, the **Status LED (1)** will be constant and the **TEMP LED (5)** dims. If the DC-protection circuit detects DC present at the output terminals, the **Status LED (1)** flashes, the **OFFSET LED (5)** brightens and the output relays will be de-activated to protect the loudspeakers. In this case the amplifier must be switched off to reset the protection circuit. The **MONOLOG** can be powered up again after approx. 10 seconds. If the **OFFSET-LED (5)** is still rightly lit and the **Status-LED (1)** is flashing, there may be a defect in the output stage and the unit must be sent in for service.

If the **Status-LED (1)** keeps flashing after the amplifier is powered up, the initial impedance check has measured a load less than 2 Ohms at the output terminals (speaker system and cable combined) – There may even be a short circuit!

Since any value below 2 Ohms is outside the design parameters, the unit's power supply will not turn on.

Please turn off the **MONOLOG** amplifier and verify all connections.

**CAUTION!** The impedance check is always performed when the unit is turned on. This test takes only one second and cannot be performed during normal operation. Should a short occur during operation it could cause the failure of output transistors. Never change or work on any cables connected to the **MONOLOG** cables when the amplifier is turned on!

If all measures within specs, the unit will power up within seconds and the **Status-LED (1)** will be lit solid.

## [ 2 ] VU METER

The **MONOLOG** amplifier has an integrated VU-Meter which indicates the output level over a range from -40dB to +3dB. This **LED VU Meter (2)** inherently differs from a mechanical device since it is mass less. Thus even very short peaks can be displayed.

This feature allows to set the maximum acceptable level on the associated preamplifier (if available). The maximum allowable level at the amplifier's input is reached when the last LED is lit. Any further level increase will overdrive the amplifier and potentially cause clipping of the output signal.

For the protection of your loudspeakers it is recommended not to exceed the maximum safe output level, since especially tweeters are sensitive to high-order distortion. The **VU selector (9)** toggles between display modes on the **LED VU Meter** on the **VU Mode Indicator (4)**. **BAR Mode** displays the current signal level as bar-graph. Depressing the **VU SWITCH (9)** puts the **LED VU Meter (2)** in **DOT Mode**. In this mode a single dot indicating signal peaks is added to the bar-graph. The dot "lingers" somewhat longer at maximum excursion than the bar-graph, facilitating the readout of peak levels. Depressing the **VU selector (9)** once more turns the **LED VU Meter** off altogether.

## [ 3 ] Mains Voltage Display

This gives a digital readout of the current AC mains voltage with a precision of approx. 3%. Every second the mains voltage is measured 3 times. Subsequently the displayed value may vary somewhat. The **Mains Voltage Display (3)** can be disabled with the Display **Switch (10)**.

## [ 4 ] VU Mode Indicator

The **BAR Mode** displays the current signal level as bar-graph. Depressing the **VU selector (9)** puts the **LED VU-Meter** in **DOT Mode**. In this combined mode a single dot indicating signal peaks is added to the bar-graph. The dot "lingers" somewhat



longer at maximum excursion than the bar-graph, facilitating the readout of peak levels. The **VU selector** (9) on the rear panel of the **MONOLOG** amplifier toggles between display modes. When the **LED VU Meter** is disabled, both **VU Mode Indicators** (9) will be dimmed.

#### **[ 5 ] LED display TEMP and OFFSET**

Should the operating temperature of the unit reach its maximum permissible value the output relays will be automatically de-activated (no sound) and the **TEMP LED** (5) will be brightly lit. Once the temperature returns to normal design parameters, the output relays will reactivate and the **TEMP LED** (5) will dim.

The **OFFSET LED** (5) brightens and the output relays will be deactivated to protect the loudspeakers when the DC-protection circuit detects DC present at the output terminals. In this case the amplifier must be switched off to reset the protection circuit. The **MONOLOG** amplifier can be powered up again after approx. 10 seconds.

If the **OFFSET LED** (5) is still brightly lit after the reset, there may be a defect in the output stage and the unit must be sent in for service. Please contact your authorized dealer, distributor or **Trigon Elektronik GmbH** directly. Since there may be a more serious problem, at hand, the unit must be verified by a qualified service technician.

#### **[ 6 ] Gain LED 20dB, 26dB and 32dB:**

The push button labelled **GAIN** (11) located at the rear of the amplifier allows to set the appropriate gain for your system. Three levels of gain are available.

The **20dB** setting should be tried first. This amount of gain (amplification factor) is the lowest and usually offers the best noise figures. Since most current preamplifiers output levels are high enough to be compatible with this setting, it is not necessary to run the amplifier with increased gain, since higher voltage gain will not only increase output levels, but can also lead to increased background noise.

We recommend to always start with his lowest gain setting (**20dB**). The amplifier gain should only be increased if it is not possible to drive the amplifier to maximum output with the preamplifier. This can be easily verified with the **LED VU Meter** (2). The selected gain setting is shown by the **Gain LED** (6)

#### **[ 7 ] LED Display BAL and UNBAL**

This display shows the input selected with the **BAL/UNBAL Selector** (12).

To prevent switching noise in the loudspeakers, the output relays will be temporarily disabled while inputs are being switched.

## **[ 8 ] LED Display TRIGGER and 10V DC**

This indicates whether one of the available automatic power options has been enabled. The desired mode can be selected from the pushbutton labelled “**AUTO**” (13) located on the rear panel.

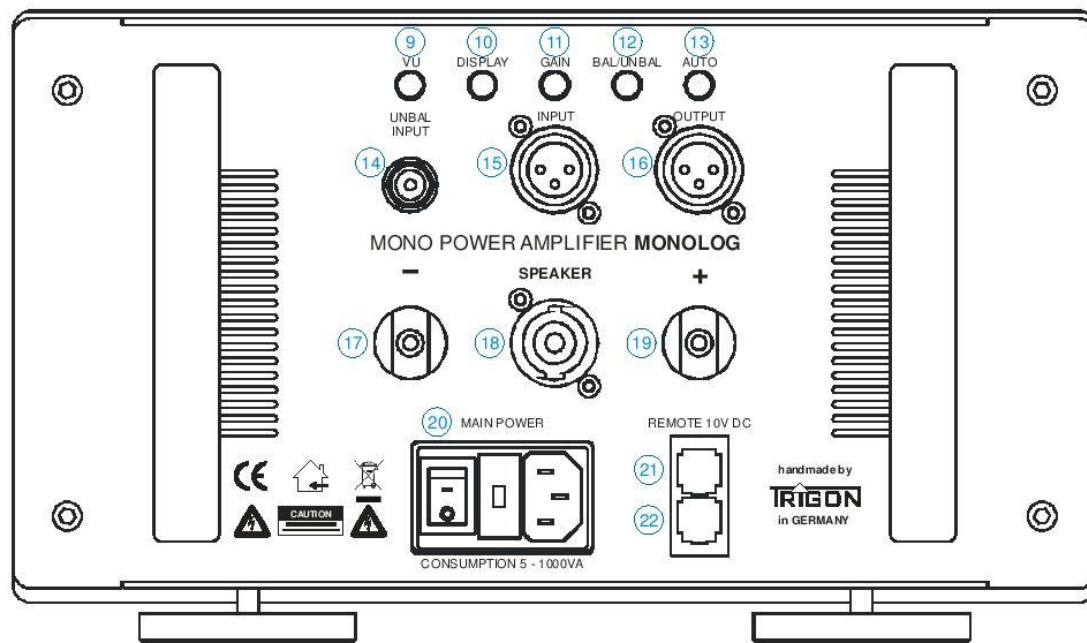
With **TRIGGER** mode selected, the **MONOLOG** amplifier will turn on as soon as an audio signal is present at the input terminals. At very low sound levels it may happen that the signal cannot be recognized. In this case it will be necessary to increase the volume setting at the preamplifier.

In **10V DC** mode the **MONOLOG** amplifier will turn on when DC (approx. +4V to +10V) is present at the **REMOTE 10V DC** (21) terminal on the rear panel. Such DC trigger outputs are featured on some preamplifiers. This option offers the advantage that power amplifiers will be turned on or off whenever the preamplifier is switched on or off.

Note: If one of the **AUTO** power options is selected, the main power switch on the **MONOLOG** amplifier has to remain in the ON position.

## 3.2 Rear panel controls and connections

MONOLOG rear panel controls and connections



### [ 9 ] VU selector

Allows to toggle between LED VU meter display modes. The selected mode is displayed by the **VU Mode Indicator** (4).

### [ 10 ] DISPLAY switch

This pushbutton enables/disables the front panel display. In disabled mode, only the **Status LED** (1) is active.

### [ 11 ] GAIN selector

Selects the voltage gain of the amplifier. Three gain settings are available (20dB/26dB/32dB). The selected value is displayed by the **Gain LED** (6).

**Hint:** We recommend to always starting with his lowest gain setting (20dB), since most current preamplifiers offer output levels high enough to work well with this setting. The amplifier gain should only be increased if it is not possible to drive the amplifier to maximum output with the preamplifier. This can be easily verified with the **LED VU Meter** (2).

It is not advisable to run the amplifier with higher gain than necessary, since higher voltage gain will increase background noise from upstream components.

## [ 12 ] BAL/UNBAL input selector

Selects the appropriate input BAL on XLR/UNBAL on Cinch (RCA). The selected input is displayed by the **BAL/UNBAL LED Display** (7).

## [ 13 ] “AUTO“ Switch

Activates the automatic power mode. With **TRIGGER** mode selected, the **MONOLOG** amplifier will turn on as soon as a sufficiently strong (loud) audio signal is detected at the input terminals.

In **10V DC** mode the **MONOLOG** amplifier will turn on when DC (approx. +4V to +10V) is present at the **REMOTE 10V DC** (21) terminal on the rear panel. Such DC trigger outputs are featured on some preamplifiers. This option offers the advantage that power amplifiers will be turned on or off whenever the preamplifier is switched on or off. The selected automatic power mode is indicated by the **TRIGGER / 10V DC LED Display** (8)

Note: If one of the **AUTO** power options is selected, the main power switch on the **MONOLOG** amplifier has to remain in the ON position.

**Hint:** We recommend to preferably use the **10V DC Mode** (if available). This makes sure that not even the quietest opening passages are being missed.

## [ 14 ] UNBAL Input

To connect unbalanced (single-ended) audio sources (e.g. preamplifiers). This input can be activated with the **BAL/UNBAL input selector** (12). The **UNBAL LED** on the front panel display (7) will be lit.

## [ 15 ] BAL Input

To connect balanced (differential) audio sources (e.g. preamplifiers). This input can be activated with the **BAL/UNBAL input selector** (12). The **BAL LED** on the front panel display (7) will be lit.

PIN1 = Ground  
PIN2 = Signal +  
PIN3 = Signal -



## [ 16 ] OUTPUT Connector

Can be used to connect to the input of another power amplifier. This allows to hook up several power amplifiers in parallel (so-called "Daisy-chain" array) to a single source (e.g. for Bi- or Tri-amping).

Note: In multi-amplification the individual drivers of a loudspeaker system need to have separate inputs.

E.g. Bi-amping in stereo requires four monoblocs, i.e. one for the bass and one for the mid/high frequency modules for each channel.

PIN1 = Ground

PIN2 = Signal +

PIN3 = Signal -

## [ 17 ] Speaker terminal –

Connector for the negative (–) side of the load (loudspeaker). Please remember that the **MONOLOG** is a bridged topology amplifier, which means that the negative (–) terminal is not neutral but connected to a "hot" pole of an amplifier stage inside the **MONOLOG**. This terminal must never be connected to the amplifier chassis or electrical ground.

**CAUTION!** The load impedance must not be inferior to 2 Ohms!

## [ 18 ] SPEAKON OUTPUT

This socket may be used to connect the speaker with a SPEAKON plug. This alternative hook up with an appropriately terminated cable has the advantage of offering a secure and relatively quick means of connecting a loudspeaker to the amplifier. Accidental shorts are fairly unlikely to occur with this type of locking connection. The SPEAKON connector has 4 poles (contacts). PIN1+ and PIN2+ are connected to the red (+) speaker terminal, PIN1- and PIN2- are connected with the black (-) speaker terminal.

**CAUTION!** The load impedance must not be inferior to 2 Ohms!

## [ 19 ] Speaker terminal +

Connector for the positive (+) side of the load (loudspeaker).

**CAUTION!** The load impedance must not be inferior to 2 Ohms!

## [ 20 ] AC input socket with mains switch and fuses

Connect the included AC mains cable. The red dot indicates the hot pole. Please make sure that this pole is connected to the hot AC-mains phase. (This can readily be verified with a circuit tester).

The rocker switch establishes the connection of the AC mains input to the front panel power switch.

In the event that the main fuse needs changing, the AC mains connector must be removed to access the fuse compartment.

**CAUTION!** Replace fuses only with the same type to avoid possible damage!

## [ 21 ] REMOTE 10V DC input connector

The **MONOLOG** power amplifier will turn on if a **trigger voltage** between +4V and +10V DC is applied to this connector with **AUTO power mode 10V DC** enabled. As soon as the **trigger voltage** is turned off, the **MONOLOG** power amplifier will shut down.

## [ 22 ] REMOTE 10V DC output connector

This connector outputs a **10V DC trigger voltage** when a trigger signal is applied to the **REMOTE 10V DC input connector** (21).

This feature allows to simultaneously turning on or off any number of **MONOLOG** power amplifiers from one trigger.

## 4. What if...

In this chapter you will find some useful tips on troubleshooting basic problems.

### 4.1 ... nothing happens?

- Is the unit plugged in correctly? - *Make sure that the AC mains cable is properly seated and plugged in.*
- Is the power outlet active or may a circuit breaker be tripped? - *Verify the circuit breaker(s).*
- Is the main AC rocker switch on the rear panel in the ON position? - *Turn on the main AC rocker switch.*
- Is the internal fuse burned out? - *Replace the fuse with a new one of the same type. If all else fails, send the unit for servicing.*

### 4.2 ... there's power but no sound?



- Is the proper input selected? - *Select active input.*

- Is there a signal present from the source? – *If there is a signal coming from the source and the proper input is selected, the VU meter will display that signal. If this is the case, please check the connections to the loudspeakers otherwise check the signal cables. Often, if the problem occurs only with one channel, chances are that a signal cable is defective and needs to be replaced.*

- Has there been an electrostatic discharge to the unit? – *It can happen, especially during winter when the ambient air is very dry, that fabrics (clothing, carpets) build up a static electrical charge which may be discharged to the amplifier chassis by simply touching the unit. This kind of static discharge can cause the microprocessor controlling the Monolog amplifier to “crash”, similar to a computer “crashing”. This may cause the Monolog’s logic circuits to deactivate the output relays or to simply stop responding. Switch off the power to the Monolog from the power switch located on the unit’s front panel for 30 to 60 seconds. Generally the amplifier will resume functioning normally once power is restored.*

### **4.3 ... it hums?**

Are the signal cables securely connected? - *Check the input cables.*

In some cases the electrical grounding of multiple components can cause so-called ground-loops that induce humming. Troubleshooting these may require some experience. Please contact your dealer for assistance.

Hum is present only when a tuner (radio or TV), a VCR, DVD recorder or a video display is connected to the preamplifier. - *These types of components are usually hooked up to an antenna or cable feed, which may in turn be grounded separately. This can also cause a ground loop. In this case a so-called ground breaker may solve the problem. They are usually inexpensive and can be readily purchased from well stocked HiFi, radio or television specialty stores.*

## 5. Specifications

<b>Power Rating</b>	: 650 Watts into 4 Ohms, 400 Watts into 8 Ohms
<b>Inputs / Impedance</b>	: 1x Cinch / 47 KOhm, 1x XLR / 47KOhm
<b>Input sensitivity</b>	: 1.2 Veff for 32dB gain
<b>Distortion (THD + N)</b>	: < 0.03%
<b>Frequency response</b>	: 0.5 Hz – 250 kHz -3dB
<b>Noise</b>	unbal : 100µV (A-weighted) 140µV (unweighted) bal : 150µV (A-weighted) 220µV (unweighted)
<b>Signal to Noise ratio</b>	: -103 dB at 1 Watt into 4 Ohms
<b>Noise floor</b>	: -106 dB at 1 Watt into 4 Ohms
<b>Weight</b>	: 23.5Kg
<b>Dimensions</b>	: 300 x 160 x 450 mm (BxHxT)

Specifications subject to change

Designed and crafted by:

**TRIGON ELEKTRONIK GmbH**

Korbacher Straße 185  
34132 Kassel  
Germany

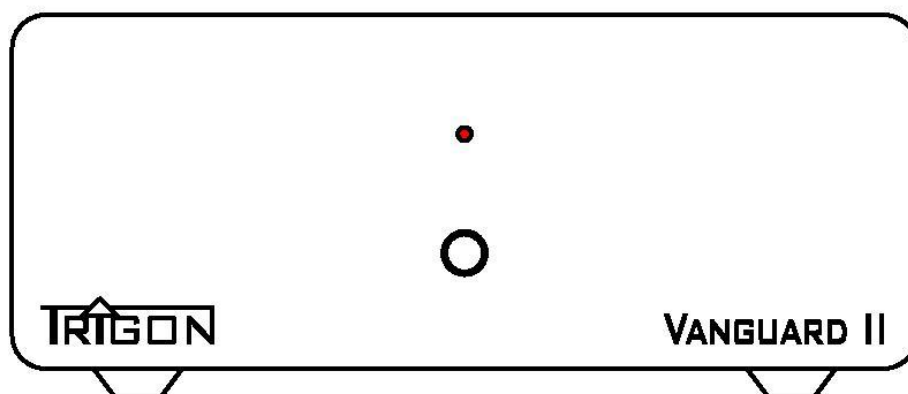
Tel. +49 (0) 561/474462  
Fax +49 (0) 561/474463  
e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)  
web: [www.trigon-audio.de](http://www.trigon-audio.de)



## OPERATING INSTRUCTIONS

FOR PHONO PREAMPLIFIER

### VANGUARD II



## Analogic

Even more than two decades ago, so the propagandists of the new medium Compact Disc wanted it, the record had retired. The number of sold records removed from year to year, those of the CD's increased, until apparently now eternally of yesterday ones and the nostalgic people at unexplainable expenditure maintained and supplemented their record collections and had still no CD player. Yes, in addition maintained they their record player makes more music... and harvested a pitiful smile.

But parallel to this development remarkable happens - and the smiled at record lover and convinced analogue fan formulated not without sneers:

"The claiming already in the year 1980 perfect CD player is constantly improved and to the yardstick of this striving the music rendition becomes similar good analogue record player but not only this. At public demonstrations once CDs were thrown in the surprised public for the demonstration of the insensitivity by Compact Discs then today the realization made itself broad that they want to be treated just as carefully as records, even more, demagnetised, frozen, painted or ground and with coatings provides to sound only correct to be supposed. A similarity or an agreement with living disk washing machines, pucks, disk platelayers and needle cleaners is purely coincidental and not intended.

If the first CD Player made music apparently still in each situation in life and on each underground perfectly, then its descendants received beside constantly improved digital/analogue transducers always more complex housings, damping and, a beggar who thinks bad thereby, sub chassis drives or belt drives.

Almost exorbitantly expensive CD drive assemblies with separate digital/analogue transducers recruit for itself with the statement, now, finally, in such a way to sound like the best record players. But the uneasiness, which in-crept in things CD in the course of the years, seems remained. New digital formats, like SACD and DVD, urge on the market and are to now reach, what was already promised twenty years ago: "SACD has a transmission range as large up to 64 times as the CD. Thus results a refinement of the signal, which corresponds to analogue technique. (dpa/dwe, 14.11.2001)

We consider the evaluation of memory procedures, which work with data reduction, before this background simply renounce able. Rational at this newest stage of the development of digital music storage media, which increases not the transmission range, but the scanning rate, is the insight that people had underestimated substantially the quantity and quality of musical information from the record groove, once again the new wasn't even the. In the age of the permanent announcement of technical sensations and revolutions we form an analogy: High End Audio won't invent each month again. Persistent, consistent advancement **and** innovation in smaller and larger steps, which is relevant before the introduction on the market, define High End for us at the last state of things.

What now? Sell all CDs as once unfortunately, the record collection? Perhaps the view continues to help that tone carriers and their artful packing are more than only technical, exchangeable canned goods. The speech is about cultural properties and time documents, which are not to be excluded straight from the individual Biography. In this regard the record already furnished the proof of their, also technical, longevity as canned goods, that of the CD isn't done yet. There it is nevertheless reassuring that in the year 2001 the number of the sold records doubled itself to more than in relation to the previous year. (dpa/dwe, 14.11.2001).

The latter makes at the same time hope for a further creative next to each other, which we, apart from the conservative aspect, agree with. Because like the attempt of the CD to be finally records heir had lead to ever better CD-players, without which already in view of the existing software only few can to do and want seriously, then the competition of the new medium has the similar record rendering again accelerated and on, at the gloss times of the old tone carrier,

a probably non-existing level elevated. Never before there were as good drive assemblies, tone arms and pick-up systems as today. Oh, and phono amplifiers with which we would be finite with the topic.

How little has to do the complex task of an equalizer pre amplifier with pure opinion, you'll be told in the next chapter. Who doesn't want to know it so exactly **first**, may skip this chapter, but only this, to find out, how the Vanguard II wants to be up and adjusted, attached, served and treated, thereby it can help to transform the high-quality, but sensitive phono signals of your records in the best possible way into music and to thank you itself in our name for your investment.

## **Little phono technology and technical description of the Vanguard II**

With the Vanguard II concerns it a phono pre amplifier for the equalization and reinforcement of signal voltage coming from a record player.

Signal voltage coming from a pick-up system is unfortunately not as with CD-players or other audio devices over the shown frequency range linear, but contained with 20 cycles per second approx. 1000 time smaller signal than with 20 kHz. Without equalization the music would therefore sound itself extremely full of high tones.

The task of the phono amplifier or better said the equalizer pre amplifier is it now to produce a linear audio signal from this bent rendition characteristic, i.e. with all shown frequencies equivalent loud.

Thus however not enough, the signals of the pick-up systems are also still very weak (or quietly), so that a relatively high reinforcement is needed to raise the audio signal to the level, which is usually available with all other audio sources (except microphones). With MC pick-ups the task of the equalizer pre amplifier is more fastidious, because the output voltage of these systems is usually lower even again around the factor 10 (i.e. 20dB) than with MM pick-ups.

Furthermore the different pick-up systems need also another appropriate feed impedance, which can be adapted individually for each pick-up, to be able to unfold their qualities complete.

The demands, which are made against a phono amplifier, therefore are:

- 1. Exact equalization of the input signal**
- 2. High, adjustable reinforcement**
- 3. Individual adjustment of the feed impedance**

The first task, **exact equalization of the input signal**, can be mastered only if you use highly exact construction units in the equalizer part of the phono amplifier. Therefore we measure each construction unit for this stage with highly precise measuring instruments. The values of the assigned construction units are selected here on a deviation from less than 1%! Identical pairs of construction units are always formed for the two stereo channels, to exclude channel inequalities. In this way the Vanguard II produces an almost perfectly linear output voltage.

The second task, **high, adjustable reinforcement**, represents a problem of completely different kind. High reinforcement of the information signal means at the same time also high reinforcement of spurious signals. The main spurious signal is thereby the noise. This problem can be solved only satisfyingly with very efficient and at the same time low-noise amplifier stages. In the Vanguard II we use highly exact operation amplifiers, which besides exhibit extremely small distortion values.

The other spurious signal, which leads to problems in phono amplifiers again and again, is the so-called humming. This humming has usually three causes: Stray effect through nearby mains transformers, *careless* supply voltage and incorrect printed circuit board design. Over to avoid the stray effects by the mains transformer the power pack of the Advance is accommodated in a separate housing and so it can be set up in some distance to the set.

A special power pack circuit supplies the sensitive amplifier circuit with filtered direct current. However in order to exclude net influences completely, we recommend to use the battery-power supply "TRIGON Volcano II" with a lead gel accumulator, which is optional switchable, with and without power pack support, to supply the Vanguard II with (on principle) really clean direct current.

The printed circuit board design is characterised among other things by a special star shaped arrangement of the pig pus courses, so that humming signals cannot disturb the sensitive amplifier stages.

The reinforcement can be adjusted individually in 16 stages by small mini switches, which are attached on the lower surface of the set. With the help of that table indicated far down you could make the correct attitude for the respective pick-up system there.

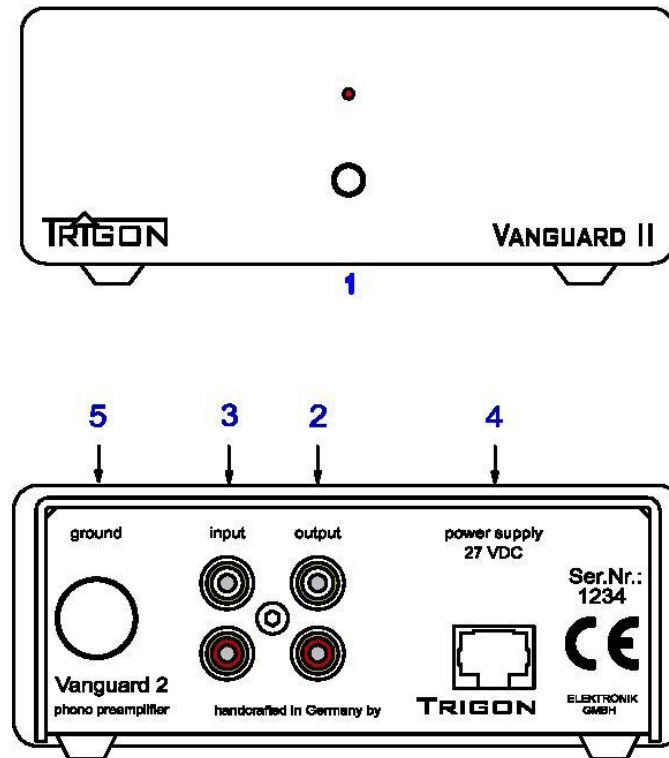
The third task, **individual adjustment of the feed impedance**, can be settled with the Vanguard II by a mini switch on the lower surface of the set. Here are six different adjustment resistances and this means 64 combinations are for the adjustment of one MC pick-up and 2 capacities, so there are four combinations for the adjustment of a MM pick-up at the disposal. Information about all combinations gives a table indicated far down. You recognize already by the larger number of possibilities of adaptation of a MC pick-up that the Vanguard II treats MC pick-ups preferentially. The reason lies in the fact that the majority of the offered High-end pick-up systems are nowadays of the type MC.

Because the Vanguard II is a separate phono amplifier that is connected with the pre- rather full amplifier via link cable, there are also placed high requirements to the output stages of the amplifier. Here we have decided us for an output stage, which makes a sufficiently small output resistance available, so that also cables of more than 2m lengths can be attached. This makes it possible to set up the Vanguard II in direct proximity of the record player and to keep so the cable length between record players and Vanguard II very small. This is of importance, because short cables can minimize transducer losses and offer at the same time external influences less attack region, so that the anyway very susceptible, low signal of the pick-up is impaired as little as possible.



## The operation and wiring

In the picture down is shown the front and the back of the Vanguard II.



### 1. Operating key and control lamps

With the tracer (1) the Vanguard II can be switched on and/or off. The red indicator LED over the key signals the operating status.

### 2. Line OUT

The output signal rests against these sockets. Connect this exit with a high level or a line entrance of your pre and/or full amplifier. Prevalent are such entrances designated with AUX. But generally you could use the CD- or TAPE-entrance of the pre and/or full amplifier, too.

### 3. Line IN

At these sockets the record player (pick-up) will be attached. With the mini switches at the ground the feed impedance can be indicated adjusted, like shown in the table 1.

### 4. Power pack entrance socket

To this socket the ground power pack belonging to the scope of supply is attached. **Make first the connection between power pack and Vanguard II, before you connect the**

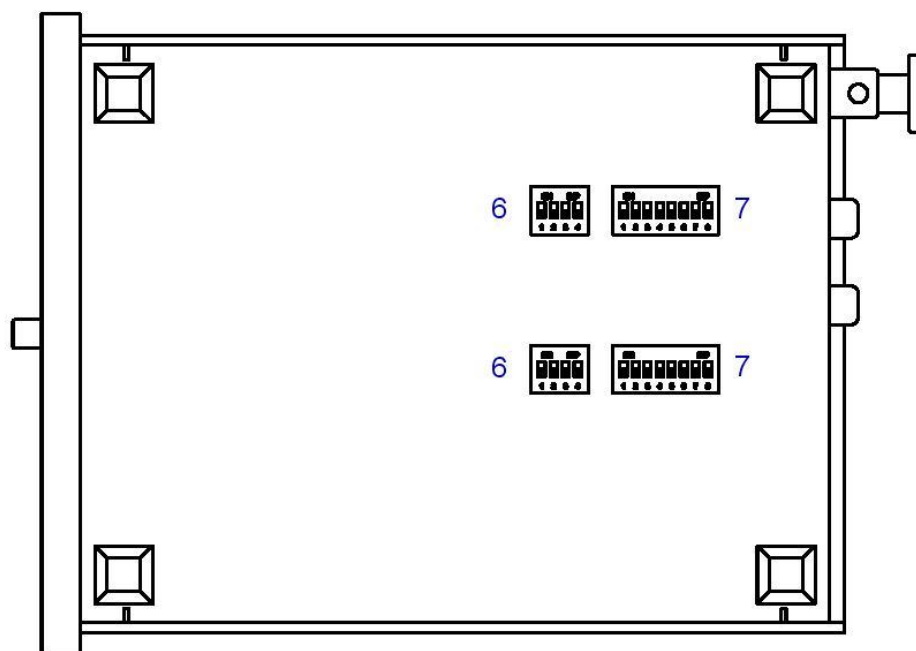
**power pack with the lighting system.** Thus it is guaranteed that it comes to no inadvertent short-circuits at the exit of the power pack.

## 5. Ground (ground terminal)

At this clamp the grounding- rather earth-cable, which is usually led out separately at record players, is attached. In most cases is at these grounding electrodes a fork-putting shoe. To be able to attach this *fork*, you untwist the knurled thumbscrew of the ground terminal a little and wedge then the *fork* through closing the knurled thumbscrew.

Simple stripped cable ends can be also attached by solving, after that they were put into the lateral drilling of the knurled thumbscrew and then likewise again with the knurled thumbscrew clamped.

Subsequent is the view of the ground of the Vanguard II with the channel separated mini switches for the reinforcement (6) and the feed impedance adjustment (7) illustrated.



## 6. Mini switch for the gain setting

With these switches for each channel the reinforcement is adjusted separately. For the attitude you use the following table as guideline assistance.

### Table of the switching positions for the gain setting.

With the four-fold mini switch for each stereo channel on the lower surface of the Vanguard II the reinforcement can be adjusted separated.

As this table shows, the reinforcement between 42 dB and 66.3 dB can be adjusted in 16 stages.

**Reinforcement table for VANGUARD**

S4	S3	S2	S1	Reinforcement in dB	For systems with the following output voltages
0	0	0	0	42	4mV
0	0	0	1	47.5	2.2mV
0	0	1	0	51.3	1.4mV
0	0	1	1	53.6	1.1mV
0	1	0	0	55	0.89mV
0	1	0	1	56.5	0.75mV
0	1	1	0	58.1	0.63mV
0	1	1	1	59.2	0.55mV
1	0	0	0	62.2	0.39mV
1	0	0	1	63	0.36mV
1	0	1	0	63.8	0.33mV
1	0	1	1	64.3	0.31mV
1	1	0	0	64.8	0.29mV
1	1	0	1	65.3	0.27mV
1	1	1	0	65.8	0.26mV
1	1	1	1	66.3	0.24mV

A 1 means: Switch placed on position ON

A 0 means: Switch not switched

If you do not find the exact value of the output voltage of your pick-up in this table, you could select the value, which comes next to your pick-up.

You reach in each case with the in the preceding table given attitudes a DIN-Output voltage of 500 mV. It's depended from the entrance sensitivity and reinforcement of your pre or full amplifier you need often only a clearly smaller output voltage to achieve the desired hearing volume. You should experiment in this regard because a lower reinforcement can be tonal more favourable.

Louder systems (output voltage more largely 8 mV) can be naturally also attached, however thereby the over-regulation reserve is reduced, i.e. it can come to the over-regulation of the amplifier, which expresses itself by higher distortions.

Quieter pick-ups (output voltage of small 0.24 mV) can be operated accordingly problem-free.

Frequently, pick-up manufacturer indicates the output voltage of their systems in the e.g. following way.

Output voltage = 1.2mV with 4.36 cm/s

The standardized output voltage refers usually however to a reference fast of 5.6 cm/s. In our case therefore the output voltage results to:

$$\text{Outputvoltage} = \frac{1.2mV}{4.36cm/s} * 5.6cm/s$$

Thus results an output voltage of approx. 1.54 mV, i.e. the reinforcement you should set the mini switch 2 to ON.

## 7. Mini switch for the feed impedance

These switches are adjusted separately for each channel the feed impedance. For the attitude you use the following tables 1.1 and 1.2 as guideline assistance.

**Table 1.1 of the switching positions for the entrance capacity**

Adjustment capacities can be connected to magnetic systems by depressing the switches S1 and S2. S3 to S8 are switched off with MM systems, because MM systems are usually operated at input impedance by 47KOhm.

S1	S2	S3	S4	S5	S6	S7	S8	Entrance capacity	Input impedance in ohm
0	1	0	0	0	0	0	0	47pF	47000,0
1	0	0	0	0	0	0	0	100pF	47000,0
1	1	0	0	0	0	0	0	147pF	47000,0

A 1 means: Switch placed on position ON

A 0 means: Switch not switched

The entrance capacity without connected capacity amounts to approx. 60 - 100pF with the Vanguard II.

Each capacity, which is connected, must be added to this entrance capacity. The cable capacitance of the cable connections between record players and preamplifiers must be added, too. Furthermore the cable capacitance of the cable in the tone arm pipe adds itself. In this way do values of more than 200pF - 300pF often already come without auxiliary capacities.

To be noted it should, however, that deviations by the pick-up manufacturer recommended of the adjustment capacity, in the order of magnitude of 20 - 30 % are acceptable, since during the production of pick-ups frequently similar tolerances develop.

**Table 1.2 of the switching positions for the input impedances**

100pF	220pF	1800	1000	470	220	100	47	
S1	S2	S3	S4	S5	S6	S7	S8	Input impedance computed in ohms
0	0	0	0	0	0	0	0	47000,0
0	0	1	0	0	0	0	0	1733,6
0	0	0	1	0	0	0	0	979,2
0	0	1	1	0	0	0	0	634,2
0	0	0	0	1	0	0	0	465,3
0	0	1	0	1	0	0	0	369,8
0	0	0	1	1	0	0	0	317,6
0	0	1	1	1	0	0	0	269,9
0	0	0	0	0	1	0	0	219,0
0	0	1	0	0	1	0	0	195,2
0	0	0	1	0	1	0	0	179,6
0	0	1	1	0	1	0	0	163,3
0	0	0	0	1	1	0	0	149,4
0	0	1	0	1	1	0	0	137,9
0	0	0	1	1	1	0	0	130,0
0	0	1	1	1	1	0	0	121,2
0	0	0	0	0	0	1	0	99,8
0	0	1	0	0	0	1	0	94,5
0	0	0	1	0	0	1	0	90,7
0	0	1	1	0	0	1	0	86,4
0	0	0	0	1	0	1	0	82,3
0	0	1	0	1	0	1	0	78,7
0	0	0	1	1	0	1	0	76,1
0	0	1	1	1	0	1	0	73,0
0	0	0	0	0	1	1	0	68,6
0	0	1	0	0	1	1	0	66,1
0	0	0	1	0	1	1	0	64,2
0	0	1	1	0	1	1	0	62,0
0	0	0	0	1	1	1	0	59,9
0	0	1	0	1	1	1	0	58,0
0	0	0	1	1	1	1	0	56,5
0	0	1	1	1	1	1	0	54,8
0	0	0	0	0	0	0	1	47,0
0	0	1	0	0	0	0	1	45,8
0	0	0	1	0	0	0	1	44,8
0	0	1	1	0	0	0	1	43,8
0	0	0	0	1	0	0	1	42,7
0	0	1	0	1	0	0	1	41,7
0	0	0	1	1	0	0	1	40,9
0	0	1	1	1	0	0	1	40,0
0	0	0	0	0	1	0	1	38,7
0	0	1	0	0	1	0	1	37,9
0	0	0	1	0	1	0	1	37,3
0	0	1	1	0	1	0	1	36,5
0	0	0	0	1	1	0	1	35,8
0	0	1	0	1	1	0	1	35,1
0	0	0	1	1	1	0	1	34,5
0	0	1	1	1	1	0	1	33,9
0	0	0	0	0	0	1	1	32,0
0	0	1	0	0	0	1	1	31,4
0	0	0	1	0	0	1	1	31,0
0	0	1	1	0	0	1	1	30,4
0	0	0	0	1	0	1	1	29,9
0	0	1	0	1	0	1	1	29,4
0	0	0	1	1	0	1	1	29,0
0	0	1	1	1	0	1	1	28,6
0	0	0	0	0	1	1	1	27,9
0	0	1	0	0	1	1	1	27,5
0	0	0	1	0	1	1	1	27,1
0	0	1	1	0	1	1	1	26,7
0	0	0	0	1	1	1	1	26,3
0	0	1	0	1	1	1	1	26,0
0	0	0	1	1	1	1	1	25,7
0	0	1	1	1	1	1	1	25,3

A 1 means: Switch placed on position ON  
A 0 means: Switch not switched

## Set-up recommendations

As well as almost all electronic devices the Vanguard II shouldn't be exposed to the direct sunlight, too. Because the set warms up a little when it is in operation, you should pay attention to sufficient circulating air.

A phono amplifier is a device with high signal reinforcement. Unfortunately such devices amplify also any spurious signals. One of these radiated spurious signals is the 50Hz-hum by the transformers. To keep this humming as small as possible, we accommodated the power transformer of the Vanguard II in a separate housing, so that you can set up this power transformer in some distance from the Vanguard II. Of course our efforts are useless if the Vanguard II is placed now on other sets with internal power transformers.

Therefore you mustn't to place the Vanguard II on other HiFi-sets. Pay attention to sufficient distance (at least 50 cm) to other mains transformers.

Particularly transformers of halogen light systems and power-output stages have a strong humming scattering field and should be therefore as far as possible from the Vanguard II. A rule is: The more largely the mains transformers the more largely should be laid out the distance to phono amplifier.

Even mains cables or the net wiring in the wall are breakdown emitters. You receive the best results by sufficient distance to these *disturbers*.

According to our experiences an installation close to the record player is the best solution. So the critical cable connection between record players and Vanguard II can be kept short and spurious signals had only few chances to affect the low pick-up signal. At the same time short signal paths means always-smaller transducer losses, too, in particular with sensitive pick-up signals.

## Care references

**Never treat the set with a scrubbing means etc.** Easy contamination such as dust and finger marks can be wiped off with a fog-damp cloth or sponge. Water-dilute-cash contamination (jam, fruit juices, etc.) could be eliminated with a liquid household cleaner, especially with glass cleaners. Mineral oils as well as animal and vegetable fats are wiped off with white spirits or **Isoprophylalkohol**. Always make sure that no cleaning fluid arrives in the set inside.

The ground power pack you should be cleaned only with a fog-damp clothe or sponge and somewhat with a liquid household cleaner. Please pull the mains plug from the wall socket before cleaning the ground power pack. Make also sure that no cleaning fluid arrives in the power pack inside.



## Technical data:

Reinforcement	: 42 – 66 dB in 16 stages adjustable
input impedance	: from 25 ohm to 1800 ohm in 31 stages (see table)
	: without connected resistances 47KOhm
capacity	: Basic capacity = 60 – 100pF
	: insert able capacity = 47pF, 100pF, 147pF
entrance	: 1x Cinch
exit	: 1x Cinch
Distance of weighted noise voltage	: -72dB with 60dB reinforcement and
	: -94dB with 36dB reinforcement
frequency response	: + - 0,2 dB RIAA equalized
distortion factor THD + N	: 0,06%
Crosstalk attenuation	: -96.2 dBA with 10KHz
power input	: < 3VA
Dimensions h x b x d	: 55mm x 133mm x 182mm

Subject to change

Production and construction:

### **TRIGON ELEKTRONIK GMBH**

Korbacher Straße 185  
D-34132 Kassel

Tel. +49 (0) 561/474462  
Fax +49 (0) 561/474463

e-mail: [trigon@trigon-audio.de](mailto:trigon@trigon-audio.de)  
web: [www.trigon-audio.de](http://www.trigon-audio.de)

Kassel, January 2003