

# PA1

*Solving dynamic signal distortions ingeniously.  
Recordings of all kinds come to life like never before.  
PA1: **Purity Amplified.***



*PA1 - manual*

Please read this manual before operating the unit.

**Grimm** | AUDIO

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# 1. Introduction

Thank you for purchasing the Grimm Audio PA1 Power Amplifier. Like all our products, the PA1 is designed and built with deep knowledge and passion for music.

The Grimm Audio PA1 compact mono-block amplifier delivers 200 W output power into 4 Ohms and is designed to drive even the most demanding loudspeakers easily. Its unique circuit design minimizes many forms of often overlooked distortion types, like phase modulation, thermal distortion and residual cross-over distortion.

We achieved this by means of a meticulously optimized design, taking full advantage of modern day technologies. With the Grimm Audio PA1, we proudly present a solid state amplifier that combines the 'magic' sound quality found in the best tube based designs with the rock-solid presentation found in the best solid state designs.

We wish you many hours of pure listening enjoyment with your PA1 amplifiers.

The Grimm Audio Team  
info@grimmaudio.com

## 2. Important Safety Instructions

*Grimm Audio gaat er van uit dat u deze Engelstalige tekst volledig begrijpt. Als u hier moeite mee heeft dient u contact op te nemen met Grimm Audio. Op verzoek sturen wij u een vertaling toe.*

*Grimm Audio nimmt an, dass Sie diesen Englischen Text völlig verstehen. Wenn notwendig, nehmen Sie bitte Kontakt auf mit Grimm Audio. Auf Wunsch wird Ihnen eine Übersetzung zugeschickt.*

*Grimm Audio suppose que le lecteur comprend parfaitement le texte en Anglais ci-dessous. En cas de doute s.v.p. contacter Grimm Audio. Si nécessaire, on pourra vous envoyer une traduction.*

*Grimm Audio da por supuesto que el texto en versión Inglesa no ofrece ninguna duda de interpretación y se entiende íntegramente. Si este no fuese su caso rogamos contacte con Grimm Audio quien, a petición, se encargaría de enviarle la correspondiente traducción.*

***Please follow these precautions when using this product:***

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Dangerous voltage is inside this apparatus. Opening is only allowed by qualified service personnel.
6. Use the supplied power cable as intended. The PA1 does not use a third grounding prong in its power connection. For your safety the PA1 design is of the class 2 'double isolated' type.
7. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

8. Unplug this apparatus during lightning storms or when unused for long periods of time.
9. Do not use this apparatus near water.
10. Do not use this apparatus outside.
11. Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids (flower vases, drink cans, coffee cups, etc) on the apparatus.
12. Clean only with a dry, soft, non-fluffy cloth. Do not spray any liquid cleaner onto the cabinet, as this may lead to dangerous shocks.
13. Install in accordance with the manufacturer's instructions.
14. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat. Avoid exposure to direct sunlight.
15. Use only attachments or accessories specified by the manufacturer.
16. This unit runs warm when operating. Place in a well ventilated area. Ensure cooling is not blocked.
17. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
18. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

## 3. Installing

### Unpacking and Installation

Your PA1 was carefully packed at the factory and the packaging it came in was designed to protect it from the trials and tribulations of shipping. Keep the box and all packing materials, so that in the unlikely event that you need to return the PA1 for servicing, you can do so safely.

### Placement

The PA1 can be placed near electric gear such as computers without worry, but it is recommended to keep some distance from equipment that produces strong magnetic fields to avoid hum.

### AC Power Hookup

The PA1 has a built-in linear power supply. It automatically detects and sets the applicable mains voltage category of either 115 V or 230 V (50 or 60 Hz).

The PA1 has a main power switch on the back panel. It is recommended to turn this switch off before plugging in or unplugging the AC power cable.

The PA1's IEC mains connector has no safety earth tab. This choice ensures that no unwanted ground loop can occur via the housing earth and the signal cabling. Obviously, to guard your safety, the PW1 is designed in compliance with Class 2 'double isolation' levels.

The PA1 is shipped with a proper mains cable. Grimm Audio cannot be held responsible for problems caused by using the PA1 with improper AC wiring or voltage.

### Serial number

The serial number of your unit "18-#.###.###" is noted on the back at the top left position. You may need it in case of a service request.

## Audio connections

On the back of the PA1 all audio connections are made. The PA1 input is either via XLR or RCA, selected by the switch located between the inputs. For selection simply point the switch towards the input in use.

The loudspeaker connection can be made by using stripped loudspeaker wire, loudspeaker cable spades or 4 mm 'banana' plugs.

**Caution: Do not use tools on the PA1 loudspeaker binding posts.**

The output terminals are for connection to your loudspeaker system. The PA1 amplifier is of a symmetrical type, which means that both output terminals carry the audio signal.

**Caution: Do not connect the output terminals to any device that grounds one of the output terminals.**

Do not connect multiple PA1 amplifiers in a bridged configuration.

Avoid using loudspeaker cables with a very high capacitance (like the infamous 1970's Polk Cobra).



## 4. Operation, Setup and Protection

Please read this section carefully before operating the Grimm PA1 mono block amplifier in your system. The mentioned numbers in the text below refer to the numbers in the line drawing of the PA1's back on the next page.

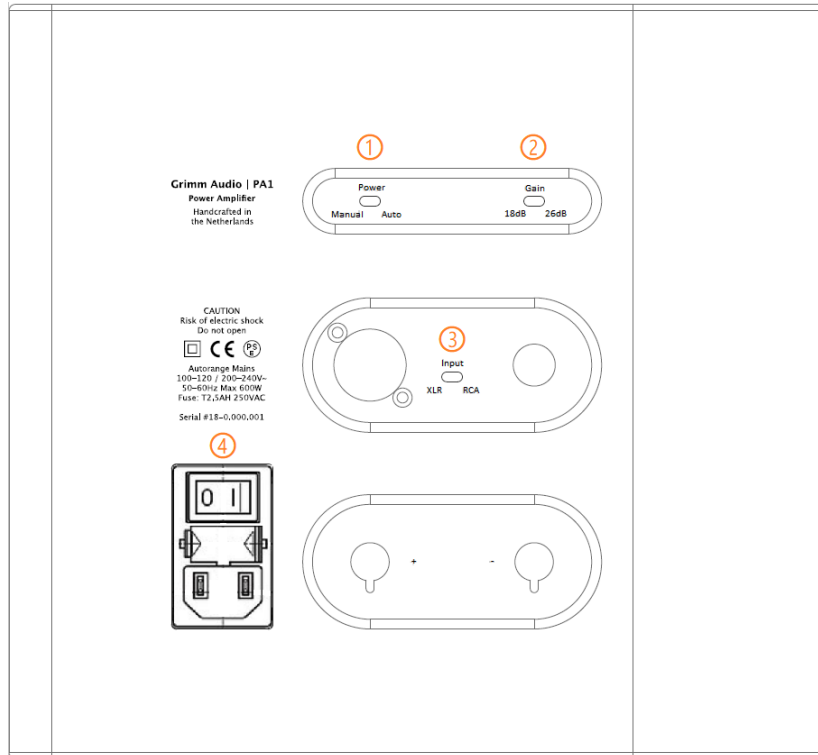
After having made all connections, the main power switch (4) can be switched on. The front LED (dot on the i in the Grimm logo on the front) will turn amber, indicating the low power 'standby' mode. After 3 seconds of initialization time the amplifier can be operated. By pressing the power switch on the front panel the amplifier will switch on. The front LED will now turn white. Pressing the front power switch once again, the amplifier will switch back to low power mode.

When the amplifiers are placed on the floor (often close to the loudspeakers to keep loudspeaker cabling short), the front power switch may not be reached easily. For your convenience we offer an automatic power mode. By setting the switch (1) labeled 'power' to the 'auto'

setting, the amplifier will switch on automatically when an input signal is detected. After approximately 40 minutes of silence, the amplifier will automatically return to the low power 'standby' mode. In the 'auto' setting the front power switch can still be used to toggle the power state, but keep in mind that switching it off with the switch will only keep the amplifier in off mode as long as no input signal is present. In general it is advised to select the automatic mode after confirming proper system operation first.

Switch (2) on the back panel allows to select the amplifier gain. The 26 dB gain setting will fit most audio pre-amplifiers. Some pre-amplifiers are capable of outputting very high output voltages. In these situations the use of the 18 dB gain setting can be considered. Also when the PA1 amplifier is used in combination with high sensitivity (horn) loudspeakers, the 18 dB gain setting may be convenient.

Switch (3) on the back panel is used to select the RCA or XLR input. The switch should point towards the input in use. The switch can also be used as a 'mute' by selecting



The back of the PA1

the unused input. This can come in handy when exchanging audio input cables. In case your amplifier seems to be defective, please check the correct setting of this input switch first.

### **Protection**

Protection circuitry inside the PA1 will automatically switch off the amplifier when the heatsink temperature exceeds 70 °C - which will not occur under normal operation circumstances. The temperature protection mode is indicated by a slow blinking red/amber sequence of the power LED on the front. When the amplifier is sufficiently cooled down, the protection mode can be reset by switching the main power switch (4) on the back panel to off and on again. Please check the output cabling for short-circuit before switching the amplifier on again. In case of a re-occurrence, please contact Grimm Audio support.

Another protection circuitry automatically and immediately switches off the amplifier when the DC output voltage at the terminals becomes larger than 2.5 V, to

protect the loudspeakers from potential damage. Such a situation may occur as result of an audio signal on the input with significant DC offset voltage, or in case of an amplifier defect. The DC protection status is indicated by a fast blinking red/amber sequence. The protection mode can be reset by switching the main power switch (4) on the back panel to off and on again. In case of re-occurrence, please contact Grimm Audio support.

The front LED will blink red when the amplifier is driven into clipping. At this point distortion will rise sharply and the volume setting should be reduced. Very short moments of clipping will be visible as dimming of the white LED. Driving the amplifier for a prolonged period of time into clipping may lead to loudspeaker damage. The clipping indication will also signal when the amplifier is operated with shorted output terminals.

## 5. Specifications

### General:

- Max. ambient temperature for operation: 40 °C.
- Line voltage 100-120 VAC or 200-240 VAC.
- Power Consumption, operation: 65 W ~ 600 W.
- Power Consumption, low power mode: <5 W.
- IEC C18 type line voltage connector (without safety earth pin). Class 2 isolation.
- Fuse 230 V: T2.5AH250V, Littelfuse 021502.5MXP.
- Weight: 15 kg.
- Dimensions: w x d x h: 250 x 250 x 240 mm.
- Package dimensions: tbd x tbd x tbd mm.

### Connections:

- XLR input impedance: 33 k $\Omega$ .
- RCA input impedance: 16 k $\Omega$ .
- 4mm 'banana' style binding posts.

### Performance:

- Gain: 26 dB or 18 dB (selectable).
- Power: >100 W in 8  $\Omega$ .
- Power: >200 W in 4  $\Omega$ .
- Output impedance: <10 m $\Omega$ .
- Damping Factor: >800 re 8  $\Omega$ .
- SNR: 96 dB (1 W, 8  $\Omega$ ).
- THD+N: -96 dB (1 W, 8  $\Omega$ ).
- THD: <0.0001 %.

## 6. Grimm Audio Limited Warranty

Grimm Audio B.V. ("Grimm Audio") warrants this product to be free of defects in material and workmanship for a period of two (2) years for parts and for a period of two (2) years for labor from the date of original purchase. This warranty is linked to the serial number of the device and can be transferred to second hand owners if they can show the original purchase bill. The original owner can extend his limited warranty to a period of five (5) years for labor and parts if he sends the original warranty card that came with the unit to the Grimm Audio factory. The extended warranty is enforceable only by the original retail purchaser and cannot be transferred or assigned.

During the warranty period Grimm Audio shall, at its sole and absolute option, either repair or replace free of charge any product that proves to be defective on inspection by Grimm Audio or its authorized service representative. In all cases disputes concerning this warranty shall be resolved as prescribed by law. To obtain warranty service, the purchaser must first call or

write Grimm Audio at the address and telephone number printed below to obtain instructions where to send the unit for service. All enquiries must be accompanied by a description of the problem. All authorized returns must be sent to Grimm Audio or an authorized Grimm Audio repair facility postage prepaid, insured and properly packaged. Proof of purchase must be presented in the form of a bill of sale or some other positive proof that the product is within the warranty period. Grimm Audio reserves the right to update any unit returned for repair. Grimm Audio reserves the right to change or improve design of the product at any time without prior notice.

This warranty does not cover claims for damage due to abuse, neglect, alteration or attempted repair by unauthorized personnel, and is limited to failures arising during normal use that are due to defects in material or workmanship in the product.

In no event will Grimm Audio be liable for incidental, consequential, indirect or other damages resulting from the breach of any express or implied warranty, including, among other things, damage to property, damage based on inconvenience or on loss of use of the product, and, to the extent permitted by law, damages for personal injury.

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