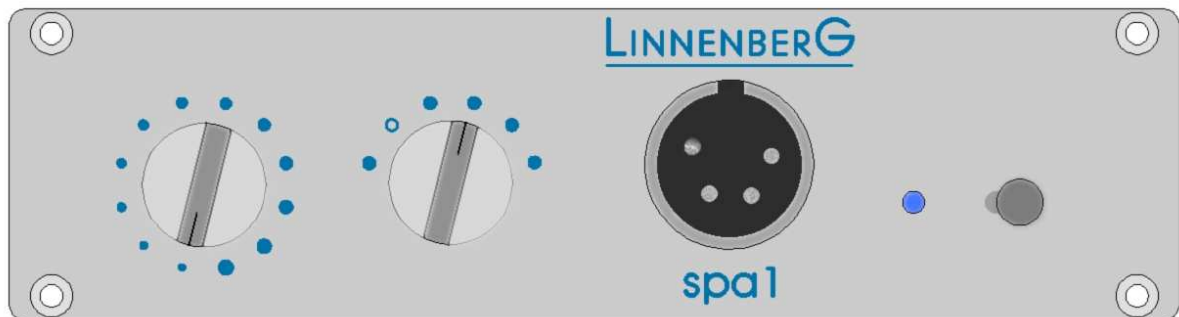


LINNENBERG

Owner's Manual



SPA1

Introduction

Thank you for purchasing the SPA1. The unit was designed for an outstanding listening experience with any type of dynamic headphones.

Connections and location

Place the unit on a solid, flat level surface such as a shelf where it is convenient to operate.

AC mains

Connect a high quality IEC power cable to the power socket. Before connecting the cable to a live wall socket, ensure that it is firmly connected to the unit's power socket first.

Power (on/off) switch

The on/off switch on the front panel disconnects the unit completely from the AC mains when switched off. No standby function is used.

Analogue – Input

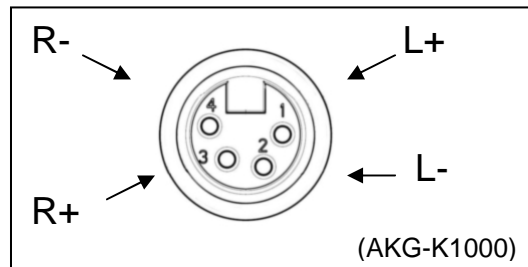
The SPA1 offers XLR type inputs for use with symmetric sources. If you wish to connect an RCA type component, use a Neutrik adapter NA2MPMF for the left and right channel.

Headphones – Output

The headphones output is located at the front. The original delivery state is the 4 pin XLR female connector, as only this option is capable of outputting a true balanced signal. A second option is the standard ¼" phone jack. Please read the section "interchanging the output modules" for more information.



XLR output connector pinning



Operational controls

The SPA1 comes with two control knobs for volume and gain adjustment. The left knob is a 12 position, 4-gang fully balanced stepped attenuator, controlling the volume in small 3.6dB steps. The control range spans over 40dB. The other knob is a gain control, defining the actual gain of the voltage amplifier. The range here is set to -5dB ... +20dB. The second position on the gain knob is the 0dB calibration, giving you a 1:1 balanced in – balanced out throughput, assuming the volume is set to maximum.

The two controls allow for an adjustment range of 65dB with a channel balance better than 0.5dB, surpassing every conventional potentiometer.

Operating the amplifier

When plugging your headphones into the SPA1, please make sure that the volume control and gain is set at minimum. Adjust the level for the first time, when some music is playing. Listening to music through headphones at much higher levels than normal is a common phenomenon: be aware that exposing your ears to high sound pressure levels for an extended amount of time damages your hearing permanently.

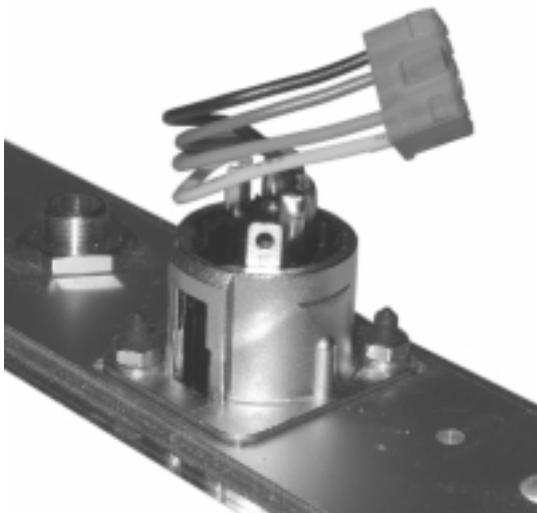
As a rule of thumb, operate the SPA1 with the lowest possible gain setting. High impedance headphones (600Ω) need more gain than low impedance transducers (32Ω). Besides the task of accommodating to the widely differing demands of headphones there are other effects of the gain select knob. First, the SPA1 is not obliged to amplify a signal which is unnecessarily attenuated by the volume control. Second, it assists you in limiting your sound level.

Interchanging the output modules

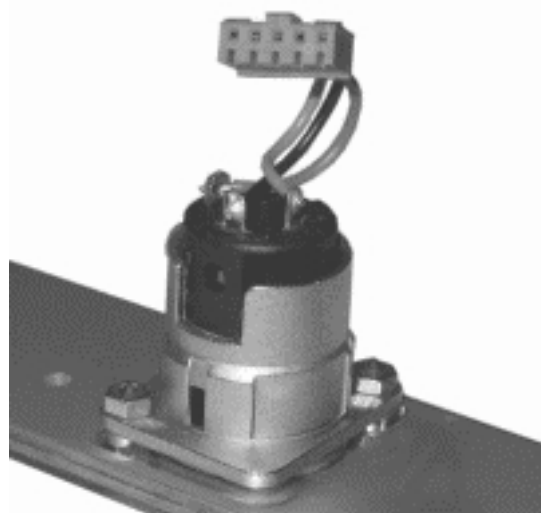
The SPA1 is prepared for interchanging the output connector from the balanced 4-pin XLR connector to an unbalanced ¼ inch phone jack. This alteration is necessary for headphones with a 3 wire, fixed single sided cable access. Here, it is impractical to operate the headphones in the balanced mode.

The phone jack socket, equipped with a blind mate connector and a set of 3mm spacers must be ordered separately, as they are not included in the SPA1 delivery. The actual work can be made by us, a qualified technician or even by the experienced user. No soldering is required.

4 pin XLR connector



phone jack



↑ 3 mm spacers ↑

Technology & Design

The unit has been entirely designed and manufactured in Germany.

Specifications

Frequency response	5Hz - 1MHz -3dB (gain dependent)
Distortion and noise	<0.01% 10Hz - 20kHz (load dependent)
Channel balance	0.5dB
Gain	-5dB ... +20dB
Output power	3.5W continuous, 32Ω, both channels driven
Output level	14V rms max. balanced
Output impedance	1Ω balanced
Mains voltage :	115V, 230V factory set
Dimensions (H x W x D) :	55 x 165 x 224 mm

Important Safety Instructions

1)

The voltage of the available AC mains differs according to country or region. Be sure that the AC mains voltage of the area where this unit will be used meets the required voltage (e.g. 230V or 115V) written on the rear panel.

2)

This product must be terminated with a three-conductor AC-mains power cord which includes an earth ground connection.

3)

Always disconnect your amplifier from the AC mains before inserting or removing any interconnects.

4)

DANGEROUS VOLTAGES ARE PRESENT INSIDE YOUR SPA1. FOR THIS REASON IT SHOULD ONLY BE OPENED BY A QUALIFIED ENGINEER UNDER ANY CIRCUMSTANCES.

CE declaration of conformity

Product Type: Headphones amplifier

Model: SPA1

Linnenberg-Elektronik declares that this product complies with the Low Voltage Directive 73/23/EEC and the Electromagnetic Compatibility Directive 89/336/EEC, amended by the directives 92/31/EEC and 93/68/EEC.

The conformity of the designated product with the provisions of directive number 73/23/EEC is proved by full compliance with the following standards:

EN 60065, EN 61000-3-2, EN 61000-3-3

The conformity of the designated product with the provisions of directive number 89/336/EEC is proved by full compliance with the following standards:

EN 55013, EN 55020

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