

PHONE-AMP G100 Final Edition



USER´S MANUAL



LAKE PEOPLE electronic GmbH

development and manufacturing of audio electronic
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Cordial thanks for your decision in favour of a Lake People product !

Lake People electronic GmbH develops, manufactures and distributes products in the professional range, for broadcast, television, airports, exhibition halls, festival venues, theatres, large-scale installations, private studios and more. In the private sector as well, Lake People products become increasingly popular due to their outstanding quality.

Who develops Lake People equipment ?

The devices are exclusively developed in Germany by the engineers of Lake People electronic GmbH. In doing so, the team of developers can draw on thirty years of experience and countless products for the pro-audio domain.

Among others, the first German-made 20-bit A/D and D/A converters were developed by Lake People in the early nineties of the past century.

Who manufactures Lake People equipment ?

The devices are exclusively manufactured in Germany by Lake People electronic GmbH or contractors in the company's vicinity.

Lake People puts high emphasis on domestic manufacturing. As well, all component suppliers are chosen in order to achieve the main part of added value inland.

How do Lake People devices get to the customer ?

Lake People devices can be obtained from respective specialist suppliers. If there is none such accessible regionally, the customer is supported by transregional distribution partners (google may help...) and, of course, by Lake People on-line shop.

Å and if it doesn't work like it should ?

Lake People devices are covered by a 24-month warranty. In case of any malfunction during this period, they can be shipped to the manufacturer directly. Of course, the client will benefit from Lake People's full technical support even when warranty has expired. Any technical questions or need for advice is welcome.



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General Safety Instructions

WARNING

For your protection, please read the following:

Water, Liquids, Moisture:

This appliance should not be used near water or other sources of liquids. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

Power Sources:

The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

Grounding:

Care should be taken that this appliance is operated with proper grounding only.


Power Cord:

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

This unit is equipped with a 3-pole mains cable with German 3-pin mains plug.

In some countries this unit must be operated with a mains adaptor, supplied by the owner.

Please refer to the table below to connect a mains plug:

OVERVIEW: POWER CORD FUNCTION AND COLORS			
CONDUCTOR		COLOR	Alternativ
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E 	PROTECTIVE EARTH	GREEN+YELLOW	GREEN

U.K. Mains Plug Warning:

A moulded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility.

NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A 13 AMP POWER SOCKET. Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and **MUST** be ASTA approved to BS 1362.

Mains Fuse:

The mains fuse of this appliance is soldered in place and accessible from the inside only!!

A blown fuse may indicate an internal problem and should be replaced during qualified servicing or repair work !!

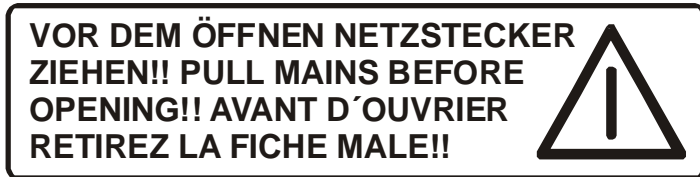
Switchable Power Supply:

Connect this unit to the power source indicated on the equipment rear panel only to ensure safe operation !!

This unit is provided with an internally settable mains supply for 115 / 230 V AC.

Service / Repair:

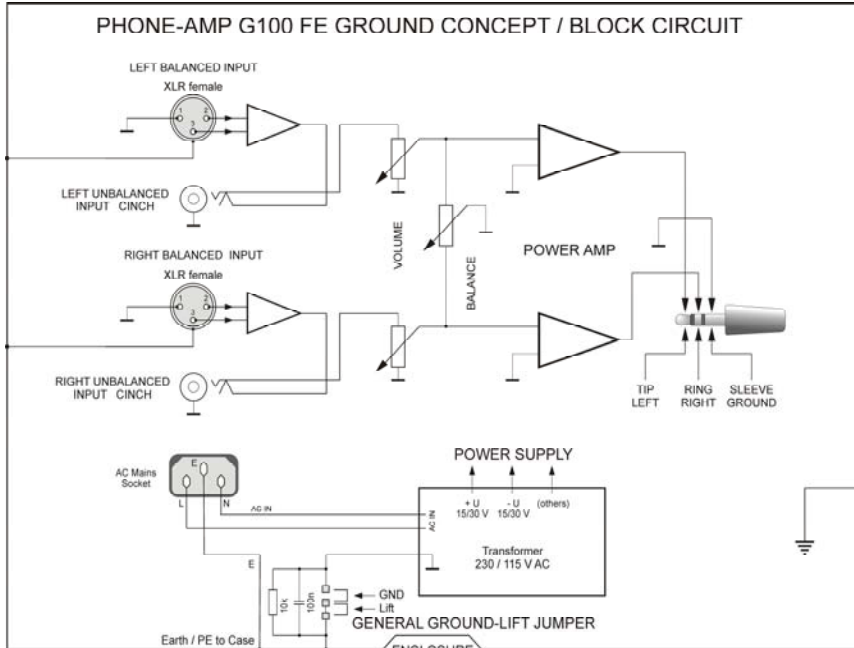
To reduce the risk of fire or electric shock, the user should not attempt to service the appliance beyond the measures described in the operating manual. All other servicing or repair should be referred to qualified personnel !!

**Electromagnetic Compatibility**

This unit conforms to the Product Specifications noted as **Declaration of Conformity** at the end of this manual. Operation is subject to the following conditions:

- this device may not cause harmful interferences
- this device must accept any interference received, including interference that may cause undesired operation
- this device must not be operated within significant electromagnetic field

The Earth / Grounding Concept



**General GROUND-LIFT Jumper - accessible from the inside.
Mind the SECURITY INSTRUCTIONS !!**

Ex-works this jumper is set to the **LIFT** position.

The internal ground potential is ~~lifted~~ lifted by means of this jumper.

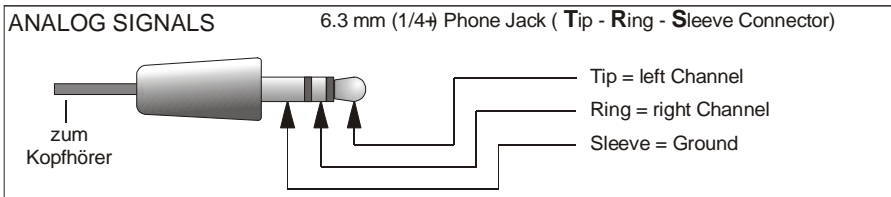
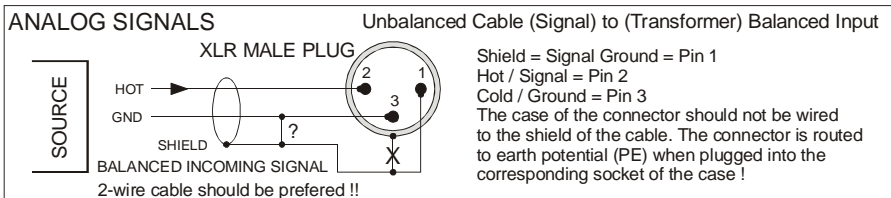
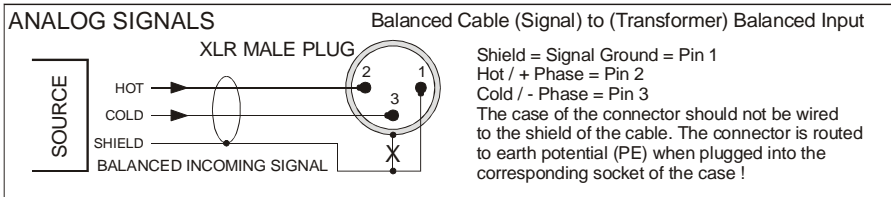
As a result, the interconnection for DC voltages and lower frequencies (< 150 Hz) will be cut. Higher frequencies will be bled off to earth potential through the RC filter. The LIFT position is helpful in case of hum or jitter caused by different ground/earth potentials.

Of course full electrical protection is granted as the case is always connected to ground/earth potential !

CAUTION

**THE HIGH OUTPUT LEVELS
ACHIEVABLE WITH THIS UNIT MAY
DAMAGE YOUR HEARING
OR THE HEADPHONES
IF OPERATED CARELESSLY !!**

Connection / Connectors for Analog Signals



GENERAL

The PHONE AMP G100 is a stereo headphone amplifier designed for low-, medium- and high-Z loads (16 ... 600 ohms), as typical for most high-quality headsets.

Due to its circuitry layout optimized in terms of noise/THD and specially adapted to the head-phones mentioned above, the PHONE-AMP G100 fulfils highest quality demands.

Its features comprise:

- Balanced inputs via XLR
- Unbalanced inputs via Cinch
- **PRE-GAIN** = five selectable gain presets
- High-grade volume control for enhanced linearity and lowest crosstalk
- Fully split amplifier design
- Two headphone sockets
- Delayed switched on/off headphone outputs by relay

Despite its compact dimensions, the PHONE-AMP G100 offers optimum flexibility and highest output power. Reliability even under rough or improper handling conditions has been another important goal of development.

Thus, the unit is absolutely long-term short-circuit-proof.

In addition, the PHONE-AMP G100 is equipped with internal filters to prevent overload by inaudibly high frequencies.

THE CASE

The case of the PHONE-AMP G100 are made of stainless steel while front and rear panels are made from aluminum. Due to the rigged materials used, the unit is well protected against mechanical damage.

EARTH AND GROUND

The Case of PHONE-AMP G100 is connected to earth potential. The internal ground potential may be connected to earth by means of a

jumper. If required, the jumper may be set to GND+position (see page 6: "The earth/grounding concept" and page 14: "Jumper settings").

THE POWER SUPPLY

Mains is connected via a three-pin IEC/CEE socket and a matching three-wire mains cable with Schuko-type mains connector.

The unit is factory-set to a mains voltage of 230 VAC. Mains voltage may vary between 190 and 240 V respectively 80 and 120 V without any effect on flawless operation. The built-in toroidal mains transformer provides the internal supply voltages of +/- 30 Volt.

THE MAINS FUSE

The internal 0,25 AT fuse is soldered in place on the PCB.

IMPORTANT !!

FOLLOW THE SAFETY INSTRUCTIONS:

A blown fuse may indicate internal problems and should be replaced during qualified servicing work only !!

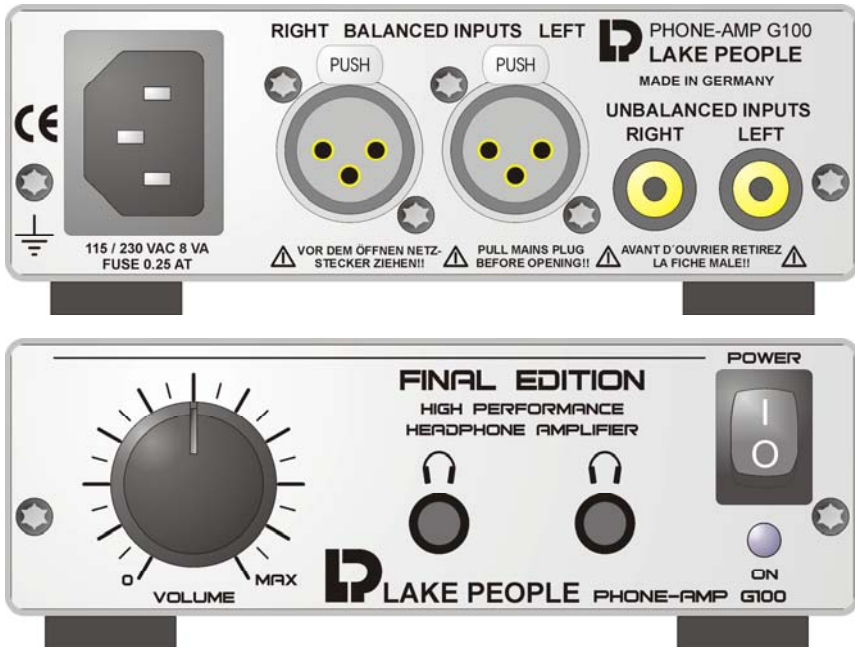
THE INPUTS

The signal inputs on the rear are equipped with XLR female-type sockets, allowing balanced signal injection. They are marked "LEFT" and "RIGHT" resp.

Balanced Signals XLR Input Wiring:	
PIN 1	GND
PIN 2	(+) PHASE
PIN 3	(-) PHASE

For unbalanced signals, two Cinch connectors with integrated break contacts are provided.

A Cinch plug applied to these sockets will automatically switch off the balanced input circuitry, thus giving priority the the unbalanced inputs !!



OPERATION

All controls and displays are located on the front panel.

POWER SWITCH

This switch activates the unit. Power-on status is indicated by the blue ON+LED beneath the switch.

VOLUME CONTROL

The VOLUME+control pot determines the headphone volume for both left and right channel.

THE AMPLIFIERS

The input signals are fed to a stereo amplifier specially designed for this purpose.

Its operating range covers nearly DC to 200 kHz (-3dB corner frequency) in order to ensure optimum linearity within the audible frequency spectrum.

Overall gain is set to +8 dB to enable the unit to drive high-Z headphones at sufficient volume.

HEADPHONES OUTPUTS

The PHONE-AMP G100 offers two stereo headphone outputs, each equipped with a standard 1/4" phone jack.

1/4" Phone Jack:	
TIP	Left Channel
RING	Right Channel
SLEEVE	GND

When turning the unit on or off, the outputs are cut from the remaining circuitry by means of a relay.

Special features

Please note:

The following chapters refer to internal settings of the PHONE-AMP G100. To alter these settings, a TORX screwdriver T10 is required. The more, you should by all means

PULL THE MAINS CORD !!!

after which all settings can be performed without any hazard.

There's hum...

Among other reasons, hum results from equalising currents caused by ground loops, e.g. due to the system being connected to separate mains outlets. This can be avoided by "soft" or hard+grounding of the PHONE-AMP G100: It is achieved by setting the ground lift jumper to either the LIFT+ or the GND+ position.

See page 14 in the technical appendix.

In μ FT+position the internal reference ground becomes insensitive to low-frequency interference. High-frequency interference however is still bled off to ground or case respectively.

Full electrical safety is granted all the time since the case is permanently grounded via the 3-pin mains plug !!

Too loud ? Too soft ? The PRE-GAIN concept

The G100 is specially designed to drive headphones. However, these can present loads between 8 ... 2000 ohms and efficiency factors between 85 ... 115 dB/mW. This makes it a little bit difficult to fulfil all desires, because ...

... owners of high-efficiency headphones may rarely turn the volume control over the nine-o'clock position without risking hearing damage, while even the max setting may be too soft for low-efficiency headphones ...

... all users expect maximum quality at lowest noise and distortion ...

Therefore the circuitry must be able to adapt to these conditions, since headphones won't !

THAT'S WHAT WE CALL PRE-GAIN

The adjustment is made in the preamp section, where the signal can be boosted or attenuated in five 6-dB steps.

See page 14 in technical appendix.

In case you find that the G100 could well be somewhat softer - e.g. in order to widen the setting range of the volume control - set the corresponding jumper to the . 6dB or -12dB position.

If you find that your G100 could do with some more gain, set the corresponding jumper to the +6dB or +12dB position.

The unit is factory-preset to the center position (0dB), which should be suitable for the majority of applications.

TECHNICAL DATA PHONE-AMP G100

All measurement RMS unwtcd., 20 Hz - 20 kHz, Pre-Gain set to 0 dB



Inputs: 2 x XLR female bal, 2 x Cinch, unbal
 Max. Input Voltage: + 21 dBu, Impedanz 10 kOhms
 Input Impedance: 10 kohms
 Nom. Input Sensitivity: +6 dBu
 Amplifier Gain: +8 dB
 Overall Gain with **PRE-GAIN**: -4 / +2 / +8 / +14 / +20 dB
 Frequency Range: 0 Hz ... 50 kHz (- 0,5 dB) δ 200 kHz
 (-3 dB)
 Slew Rate: 8 V / usec
 Dynamic Range 2x 600 R: > 125 dB / 129 dB (A-wtd)
 Dynamic Range 2x 100 R: > 122 dB / 126 dB (A-wtd)
 Noise: < -98 dBu / -101 dBu (A-wtd)
 THD+N (1kHz / 2x10V / 100R = 1W) < -100 dB / < 0.001 %
 THD+N (1kHz / 2x18V / 600R = 0,5W) < -102 dB / < 0.0008 %
 Crosstalk: < -110 dB (1 kHz) / -98 dB (15 kHz)

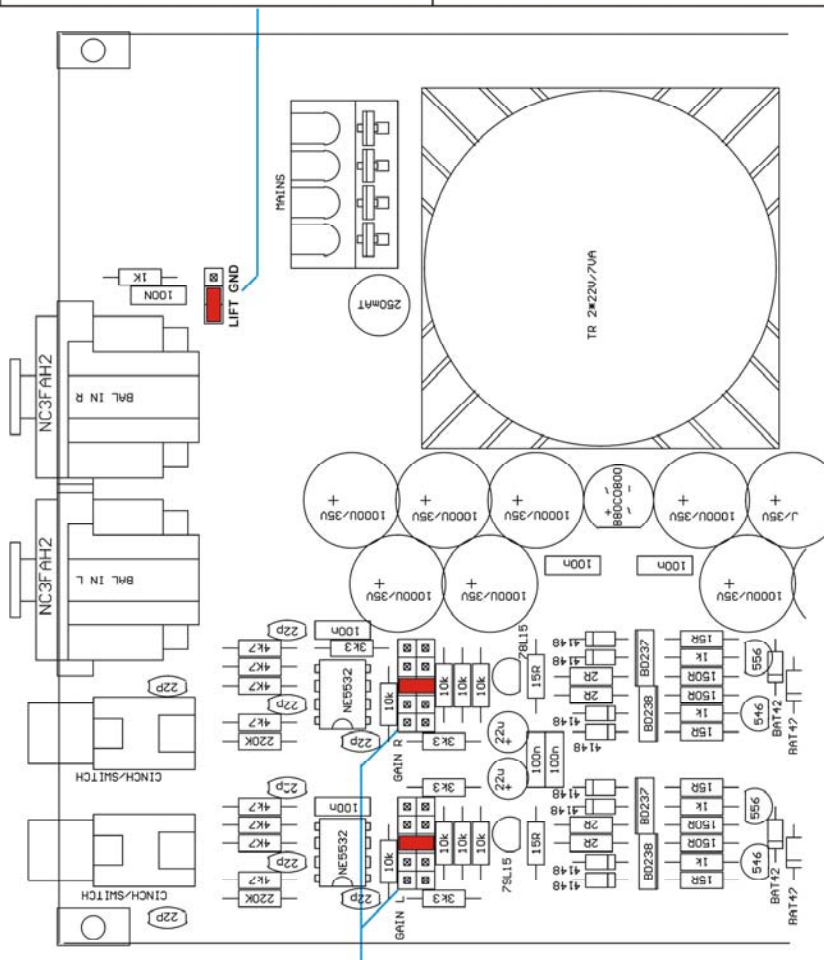
Max. Output Level:
 (1kHz / < 0.1% THD+N)







R _L (x 2)	U _a (dBu)	U _a (V)	P _a (mW)
600	27,8	18,9	595
300	27,3	17,8	1056
240	26,5	16,3	1107
100	24,6	13,2	1742
60	23,1	11,1	2053
40	20,5	8,5	1806
32	18,7	6,7	1402
16	13,1	3,5	765

Mains Supply Voltage: 230 V AC / 115 VAC max. 8 VA
 Case, Front, Back: Stainless Steel
 Dimensions: 129 x 42 x 170 mm (W x H x D)

JUMPER SETTINGS

GROUND LIFT JUMPER					
	Ground Lift	Ground- Operation int. Ground connected to Earth potential		Ground Lift	Lift position, internal Ground disconnected



PRE-GAIN JUMPERS					
	Gain is set to 0 dB Normal Operation (ex Works setting)		Gain is set to +6 dB Input signal will be 2 times higher		Gain is set to +12 dB Input signal will be 4 times higher
	Gain is set to 0 dB Normal Operation (ex Works setting)		Gain is set to -6 dB Input signal will be 2 times lower		Gain is set to -12 dB Input signal will be 4 times lower

EC CONFORMITY STATEMENT:

We herewith declare that the following unit

Name: **LAKE PEOPLE PHONE-AMP G100 FE**

Serial No. : -all -

is in conformity with the following EC directives:

2006/95/EG	Low voltage directive
20014/30/EC	EMC directive
EN 60065:2002+A12:2011	Security directives for audio-, video- und similar electronic devices
JIS C6065:2013	
2001/95/EC	General Product Safety Directive

For verification of conformity with regard to electromagnetic compatibility the following harmonized standards are applied:

EN 50081-1:1992	Generic emission standard
EN 50082-1:1992	Generic immunity standard

Product family standard for audio, video, audio-visual entertainment apparatus:

EN 55013:2001	EN 61000-3-2:2000
EN 55020:2002	EN 61000-3-3:1995

2011/65/EU, RoHS directive

2012/19/EU, WEEE directive / Member No.: DE 26076388

This declaration is given under responsibility of:



LAKE PEOPLE *electronic GmbH*
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A handwritten signature in blue ink that reads 'Fried Reim'. The signature is written in a cursive, flowing style.

Konstanz 21.08.2016 Fried Reim CEO

WARRANTY

Since 1986 we are constructing and manufacturing sophisticated electronics for ambitious customers.

Since the early beginnings we are trying hard by accompanying measures, the use of 1st choice components and multiple quality checks during production to avoid faults at large.

We are quite effective in that and this is . amongst others - why we enjoy such a good reputation.

Despite all accurateness faults may show up which may derogate the proper operation of your product.

In this case your unit is protected by a **2-year Warranty !**

Needless to say that we will care for your product even after the expiration of the warranty. If it is necessary please dispatch your item to:

Lake People electronic GmbH
Turmstrasse 7a
D-78467 Konstanz

Fon +49 (0) 7531 73678
Fax +49 (0) 7531 74998
E-Mail info@lake-people.de

Your warranty claim begins with the date of purchase, which should be denoted on your proof of purchase.

In case of return do not forget to include the receipt of sales or a copy of the receipt.

Please also include a short description of the fault(s).

For the reshipment we need you correct address !!

Care for a safe packaging. Best is to use the original packaging.

Please keep in mind that we cannot accept collect freight.

We will grant a quick repair and quick return of the unit.

In case of a warranty repair we will reship free of charge.

Please denote here the serial number and the date of purchase:

Serial Number

Date of Purchase