

# Preliminary Handbook

Leema Acoustics Elements Stereo / Monoblock Power Amp



**LEEMA**  
ACOUSTICS

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**EC Declaration of Conformity**  
**In accordance with EN ISO 17070-1:2004**

We **Leema Electro Acoustics Limited**

of **Welshpool  
Powys  
UK**

in accordance with the following Directive(s):

2006/95/EC The Low Voltage Directive

2004/108/EC The Electromagnetic Compatibility Directive

hereby declare that: Equipment Hi-Fi Power Amplifier Model Name:

**ELEMENTS STEREO / MONOBLOCK Power Amp**

is in conformity with the applicable requirements of the following standards:

Standard. No.	Name	International Equivalents
BS EN60065; 2002	Electrical Safety Requirements	EN60065; 2002 / IEC60065; 2001
BS EN 55020; 2002	EMC Immunity	EN55020; 2002 / CISPR 20; 2002
BS EN 55013; 2001	EMC Emissions	EN55013; 2001 / CISPR 12; 2001
BS EN 61000-3-2; 2001	EMC Limits for Harmonic Emissions	EN61000-3-2; 2000 / IEC61000-3-2; 2000
BS EN 61000-3-3; 1995	EMC Limits for Voltage Fluctuations	EN61000-3-3; 1995 / IEC61000-3-3; 1994

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives and Standards.



Signed by: .....

Name: Mallory Nicholls  
Position: Technical Director  
Done at: Leema Electro Acoustics Ltd.



On: 26/4/2013

## **Introduction**

Congratulations on your purchase of a Leema Elements Stereo / Monoblock Power Amplifier.

The Leema range of products has been painstakingly engineered in the United Kingdom to offer genuine state-of-the-art performance.

Partnered with suitable equipment, Leema amplification will provide audio performance far beyond that of competitors and will equal or better the performance of products costing many times their purchase price.

A notable feature of all Leema amplification is incredible bass power and control, due to massive current capability, together with superb clarity and finesse in the upper frequencies with stunning realism in the midband.

Purchasers should read and follow this instruction manual, paying particular attention to the user installation and safety advice section.

This manual has been written to enable you to achieve the very best performance and maximum listening pleasure from your investment.

We wish you many years of pleasurable listening... Move Your World!

With best regards

The Leema Team.

## **VERY IMPORTANT**

Before connecting your new Leema amplifier to the rest of your system, please ensure that the loudspeaker cables are correctly and firmly attached to the 4mm banana sockets on the rear of the unit. All required sources should also be connected BEFORE inserting the mains power lead and powering for the first time. Although the amplifier has short-circuit protection, shorts should be avoided to reduce the stress on the amplifier.

### **User installation and safety advice**

Please ensure that the mains voltage of your new amplifier is correct for your region. The setting is displayed on a label above the mains power inlet. The mains voltage setting is not user adjustable, therefore the amplifier must be returned to the manufacturer if any changes are required.

Ensure the mains supply is switched off at the wall socket, or unplugged before installing or moving the amplifier.

Do not use near water, for example do not place a potted plant on top of the unit or allow drinks to be placed near the unit. If liquid is spilt in to the cabinet, remove the mains lead from the wall immediately. The amplifier should then be returned to your dealer for safety testing before re-use. Failure to do so may result in electric shock or even fire! Do not use the amplifier in damp conditions, e.g. outside of the house.

Keep away from direct sunlight and other heat sources and ensure adequate ventilation around the amplifier to maintain proper cooling. Units MUST NOT be stacked directly on top of each other.

Never attempt to open the cabinet. There are no user adjustable parts inside and doing so will invalidate the amplifier's warranty.

In the event of an electrical storm, remove the mains power lead from the wall outlet.

### **Overview**

As with all high-powered amplifiers, high voltages can occur at the loudspeaker sockets. Connection should only be carried out with the unit switched off. Neither of the Black negative connectors are Earth. 4 mm banana type plugs must be used.

### **Elements Stereo / Monoblock Power Amp overview**

The Leema Elements Power Amplifier is a high power output, microprocessor controlled, stereo and monoblock amplifier. It is capable of class-leading performance at the heart of an audiophile stereo system, but thanks to the LIPS (Leema intelligent protocol system) interface, it can also be part of a stunning home cinema or surround music system. Each component in the system dynamically configures in real time depending on the requirements of each input source. The microprocessor gives an unprecedented degree of sophistication, making Leema products easy to use for all the family.

### **Environmental Issues**

Leema operates a 100% recycling program. All waste materials generated as part of the manufacturing process are recycled via a licensed specialist company. The power drain from all Leema electronics, in standby or power off modes, has been optimised to a negligible level. All Leema amplifiers have been designed to attain full operational specifications and sound quality within a few minutes of switch-on.

Made in the UK

Leema electronics are designed and manufactured in the UK.

Contact Us

Leema may be contacted via our website: [www.leema-acoustics.com](http://www.leema-acoustics.com) or by telephone: +44 (0)1938-559021

## Rear Panel Connections & Switches

### Channel Switch

Because the amplifier can be used under LIPS control, where the volume level is controlled inside the power amplifier, the unit needs to understand how it is being used. The channel switch tells the unit if it being used in normal stereo mode, or as a monoblock feeding the right or left speaker. Set this switch appropriately to enable the amplifier to respond to LIPS control messages correctly.

### Mode Switch

The mode switch allows the gain of the amplifier to be reduced by 6dB when set to 'mono'. This setting may be used when the amplifier is configured for monoblock operation (which would normally increase the gain by 6dB) but the gain increase is undesirable, for example, when mixing stereo and monoblock amplifiers in the same system with monoblocks driving the woofers and a stereo amplifier driving the tweeters. In this case setting the mode switch to mono will make the monoblock gain match other stereo amplifiers in the system.

### LIPS

The LIPS switch offers three modes of operation:

LIPS VAR(iable) – In this mode, the input is locked to the SLAVE/AV input, but the volume is controlled by LIPS data. Use this mode when using the amplifier with a LIPS capable Pre-amp, Pyxis for example. In this case, Pyxis would be set to fixed output (LIPS mode) and the system volume would be controlled inside the power amps via a LIPS connection.

FIXED – In this mode, the amplifier behaves like a conventional power amp with fixed volume level. The input is via SLAVE/AV.

SURROUND – In this mode, the volume level is controlled via LIPS as in LIPS VAR mode, but the input can be selected via LIPS between SLAVE/AV and Multi 1 for use in surround systems.

### RCA/XLR

This is a pushbutton which is located behind the rear panel so that it cannot be pushed accidentally. The switch sets the SLAVE/AV input to the XLR or RCA connectors. With the power removed, use a small object such as a cocktail stick, to gently push or release the switch.

### NORM/MONO

This is a pushbutton which is located behind the rear panel so that it cannot be pushed accidentally. The switch selects between Normal stereo operation and Monoblock mode. With the power removed, use a small object such as a cocktail stick, to gently push or release the switch.

## Loudspeaker Outputs

The loudspeakers connect here. Ensure correct polarity:

Red terminal is +

Black terminal is -

### WARNING

Black terminals are **NOT** grounded.

Do not make connections with unit connected to the mains supply.

4mm banana type plugs must be used.

Note: To use Monoblock mode, the speaker cables must be connected differently to stereo mode. Refer to the rear panel legend for connection details.

## Preamp Output

Outputs are provided which mirror the selected input e.g. SLAVE/AV or Multi 1. These outputs are controlled by the amplifier's volume control and can be used for a variety of uses. Examples include feeding an amplifier in another room for a simple multi-room system, or as a line level feed to a subwoofer. They can also be used for bi-amping, where one amplifier is used to drive the tweeters in the loudspeakers and a second is used to drive the woofers.

Bi-amping offers an increase in clarity by reducing intermodulation distortion. The loudspeaker no longer draws bass current from the amplifier feeding the tweeter, resulting in cleaner high-frequencies etc. The loudspeakers must be suitable for bi-amping, this is normally the case where there are two pairs of binding post connections available on the rear of the loudspeaker cabinets. When bi-amping, it is **VITAL** to remove the bridging links from the connection panel on the rear of the speakers, otherwise the outputs of the two stereo amplifiers will be connected together, which will result in considerable damage.

If you are considering bi-amping and are unsure, please contact your dealer or Leema Electro Acoustics Ltd. for advice.

## LIPS Connection

LIPS cables are directional and have one black end and one red. If the amplifier is controlling other units, the black connector should be plugged in to either LIPS socket and the red connector plugged in to the next component. If the amplifier is to be controlled, the black connector is connected to the master device and the red connector is plugged in to either LIPS socket on the rear of the power amplifier.

## Loudspeaker Terminals

There are two pairs of low profile loudspeaker terminals on the rear panel, one pair for the left loudspeaker and one pair for the right loudspeaker. They are designed for industry standard 4mm banana type plugs. They are not suitable for bare wire connection. Due to the amplifier's unique circuit topology, neither of the Black sockets are earthed.

## Cables

Never underestimate the importance of good quality speaker cables, bell wire or lighting flex will simply not do. The higher the system resolution, the more easily the differences between cables can be discerned. Leema recommend the use of high quality bi-wire cables with your new amplifier to ensure optimum fidelity. However, a single high quality run is always superior to two runs of inferior cable. If your budget is tight, get the best quality single run you can afford. Leema recommend Leema Linx cables for optimum system synergy.

## Power Switch

The Power button toggles the amplifier between Power On and Off. If a LIPS connection is used, the power status can be controlled and any other Leema components connected via LIPS will also be controlled.

## LIPS Volume Control

The volume is adjusted via a precision attenuator under microprocessor control. This method of volume control permanently ensures the highest fidelity without the gradual degeneration of conventional motorised volume controls. It also allows the volume of multiple amplifier to be synchronised. The volume control also regulates the pre-out volume.

Note: Small clicks in the audio during volume changes are normal.

## What is LIPS?

LIPS or Leema Intelligent Protocol System, facilitates communication between various items in a Leema audio system. It allows units such as the Elements Integrated and Tucana II, to control other items in a chain. Leema's 5.2 surround system is a good example, where an Elements Integrated controls multiple Elements Power amplifiers and Essentials Volume modules for subwoofer level control. Key information including volume level, input selection and power control is passed through the bus enabling other units to operate in synchronisation. Intelligence is added within each receiving unit, for example, a power amplifier handling the surround channels of a surround system 'knows' that it won't be required when listening to a stereo source such as CD. Therefore, when the Elements power amplifier 'sees' the CD input, it powers itself down.

Each Leema unit can be controlled via the LIPS bus. Controlling units externally for example, enables them to be used within a home automation system.

## LIPS Specifics

The LIPS bus is driven by an open-drain output. Leema can supply a full RS232 interface if required. The communication standard follows the common RS232 format of No Parity, 8 data bits and 1 stop bit. The baud rate is 38400.

## LIPS Packets

Each communication on the LIPS bus contains a packet of four data bytes as follows:

First a header is sent with a value of 255. This alerts the receivers to incoming data.  
Next, a command header is sent. For a volume command, this would be 40.  
Next, a value relating to the command is sent. For volume this would be 0 to 248.  
Finally a tail byte is sent with a value of 0.

## LIPS codes

For further information, please contact Leema Technical Support.

## Audio Specifications

Power Output Stereo Mode:

8 Ohms: 55 Watts RMS per channel, 4 Ohms: 92 Watts RMS per channel, 2 Ohms: 160 Watts RMS per channel  
Minimum load impedance: 2 ohms

Power Output Monoblock Mode:

8 Ohms: 210 Watts, 4 Ohms: 365 Watts RMS  
Minimum load impedance: 4 ohms

Output Current: greater than +/- 12 Amps  
Frequency response +0/-3dB @ 1W: 5Hz - 80KHz  
Noise (A weighted, volume control minimum): -105dBm  
Signal to Noise ratio (A weighted, ref: 150 Watts RMS 4 ohms): -110dB  
THD (10 Watts RMS 8 ohms, 1KHz): 0.015% (Measured AES 17)  
Maximum DC offset: +/- 50mV

Specifications subject to change without notice.

## WEEE Scheme



Disposal of Electronic Equipment in the European Union and other countries with collection procedures:

The wheeled bin symbol on this product indicates that it shall not be treated as household waste. It should be disposed of via a collection point for the recycling of electrical and electronic equipment.

Leema is fully registered under WEEE/HK 0757 ZX