

HANDBOOK

Leema Acoustics Elements CD

ELEMENTS CD



LEEMA ACOUSTICS

WARNING: To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture. Do not use in damp conditions. Do not place objects containing liquids, drinks or vases for example, on the unit. Do not open the cabinet. Refer to qualified service personnel only.



This appliance is classified as a CLASS 1 LASER product. Do not open the cabinet as the laser beam used in this appliance is harmful to eyes.

Mains Supply Voltage: This unit is supplied pre-configured for 220-240 VAC or 110-120 VAC 50/60 Hz. This setting can only be changed by the manufacturer. Before use, check that the unit's voltage setting displayed below the IEC mains inlet matches the mains power supply in your area. Disconnect the mains supply if the unit will not be used for a long period of time.

Cleaning: Disconnect the unit from the mains supply. Clean the cabinet, front panel and lid with a soft cloth slightly moistened with a weak detergent solution or clear fluid glass cleaning product. Ensure the unit is fully dry before re-connecting the mains supply. Do not re-connect the supply with damp hands. Do not use any abrasive or solvent based cleaning products as these will damage the finish.

Placement: Operate the unit on a flat and level hard surface. To prevent the build-up of heat inside the player, place the unit in a location with adequate ventilation and do not cover the unit. Do not locate the unit near heat sources such as radiators or in direct sunlight. Do not move the player with a disc inside. The disc may be damaged.

Condensation: If the unit is moved from a cold location to a warm room, condensation may occur on the laser optics causing a temporary malfunction. The unit will return to normal operation after a short period of time.

About Discs

Only handle discs by the edge. Do not touch the silver disc surface. If a disc requires cleaning, wipe it with a soft cleaning cloth moving from the centre outwards. Do not wipe the disc in a circular motion. When not using discs, store them in a case. Never place the disc on a surface out of it's case as the disc will be permanently damaged. A disc damaged by marks and scratches may no longer play. Even if it does play, the audio quality may be degraded.

Red Book Standard

Elements CD will play any genuine red-book disc. These discs will normally carry the Compact Disc logo. Some discs have been manufactured using various forms of copy protection such as Cactus and the Sony BMG system. These discs, which do not normally carry the registered logo, may produce erratic behavior when played in Elements CD and have been the subject of much controversy. More information on this subject and listings of corrupt titles are available on various websites. Even if a copy protected disc does play, the audio quality may be compromised. Try to avoid purchasing this type of disc wherever possible.

In addition to regular red-book discs, Elements CD player will also play CD-Rs and disc with MP3 files.

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Environmental Issues

Leema operates a 100% recycling program. All waste materials generated as part of the manufacturing process at Leema's headquarters are recycled via a licensed specialist company.

Although Leema electronics operate in standby mode as opposed to being fully switched off, the power drain has been optimised to a negligible level. Contrary to popular audiophile practice, we do not recommend leaving our products permanently powered. All Leema products have been designed to attain full operational specifications and sound quality within a few minutes of switch-on.

WEEE Scheme



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

The wheelie 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

Made in the UK

Leema electronics are designed and manufactured in the UK. This includes metalwork and packaging.

Contact Us

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

Introduction

Congratulations on your purchase of a Leema Elements CD player.

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 products will provide audio performance far beyond that of their competitors and will equal or better the performance of products costing many times their purchase price.

A notable feature of this product is Leema's latest Quattro-Infinity DAC converter technology. In the Elements CD, this topology uses four 24bit/192KHz digital-to-analogue converters feeding highly optimised, balanced-input analogue filters. The net result is a CD player with analogue-like midband and high frequencies having great space and depth without the usual harshness associated with digital recording formats.

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.

Overview

Elements CD is much more than a CD player. Using Leema's LIPS interface technology, Elements CD may control aspects of the complete audio system. For example, if a source other than CD is in use, simply selecting play will automatically switch the amplifier to the CD input and select a default low volume level. Elements CD may also be fully controlled by LIPS, enabling wired integration with control systems such as Procontrol™ or Crestron™.

LIPS™ - Leema Intelligent Protocol System

LIPS is a proprietary communication system which enables Leema audio components to talk to each other. A degree of intelligence is instilled in each unit allowing the units to make decisions based on user requirements and system configuration. For example, in a multi-channel system, the components understand which of them are required for normal stereo material and which are required for multi-channel playback. When the user switches between input formats, the units respond by powering up or down as required. In this way, the system is made much easier to use and energy is not wasted powering units that are not required. Elements CD continues this theme and is able to control other units in the family, allowing the majority of the system to be hidden away if required, in an air conditioned cupboard for example.

Making a LIPS connection

LIPS cables are directional and have one black end and one red. If Elements CD is controlling other units, the black connector should be plugged in to either LIPS socket on Elements CD and the red connector plugged in to the first amplifier component, e.g. Elements Integrated. Elements CD is normally used as a master, however, it can slave when using a LIPS RS232 interface. In this case, the black connector is connected to the LIPS interface and the red connector is plugged in to either LIPS socket on Elements CD.

Elements CD must never be connected as LIPS a slave to an amplifier - it must always be master. Doing so will cause erratic operation of the player.

Rear Panel

DIGITAL Outputs

Use a dedicated digital phono or optical lead to connect to the SPDIF digital outputs

'LIPS' bus connectors

These allow communication between various Leema system components.

**Balanced XLR out Left**

Use XLR balanced leads to connect to the balanced inputs on a suitably equipped amplifier or pre-amplifier

RCA Audio Outputs

Use phono leads to connect these outputs to conventional unbalanced amplifier inputs.

Balanced XLR out Right

Use XLR balanced leads to connect to the balanced inputs on a suitably equipped amplifier or pre-amplifier

Power Inlet

Ensure that the voltage indicated is correct for your area.



Elements remote control CD commands

1. POWER-There are two power buttons. The red button (ALL) turns all of the units in a Leema Elements system on or off simultaneously. The blue power button (IND) allows units within an Elements system to be turned on or off independently by first selecting the required device button (CD, AMP or DAC) then pressing the blue power button. When powered on, the unit will display the software version number then prepare for use.

2. NUMERIC KEYS-By first selecting the CD button, the numeric keys allow direct track access, for instance, pressing the 5 button will select and play track 5. To play tracks above 10, e.g. 16, simply press + 10, then 6.

3. TRAY-The tray button opens the transport drawer, ready to either receive a disk, or for a disk to be removed if the tray is already loaded.

4. REPEAT-The RPT button cycles through the repeat functions, No Repeat, Repeat Disk or Repeat track.

5. PLAY/PAUSE-Press the green play button once to commence disk playback. Pressing the Play/Pause button while playing will pause the disk, a further press will re-start playback. If the Elements CD is being used as a LIPS master in a Leema system, pressing Play will command the amplifier to automatically select its designated CD input for playback.

6. PREVIOUS/NEXT-The blue Prev/Next buttons select the previous track or the next track, incrementally, for instance, to jump forwards five tracks on a disk, simply push the next button five times.

Elements remote control CD commands continued

7. SCAN-Pressing the yellow back or fwd buttons plays the disk in scan mode, this skips through the disk in increments of 30 seconds, playing a short piece of audio at each jump point. The back button scans backwards through the disk and the forward button scans forwards. To commence playback at a chosen point, simply press the play button once.

8. STOP-Pressing the STOP button will stop the disc rotating. If using the Elements CD as a lips master, stopping the disk will allow the input to be changed on the amplifier being controlled.

9. DISPLAY-The DSPL button allows the user to turn off the illuminated central display on the Elements CD players front panel.

Front Panel Operation - Front panel control is via five miniature push switches and a single, illuminated button.

1. POWER - The Power button toggles Elements CD between power On and Off. If a LIPS connection is used, the power status of any other Leema components connected via LIPS will also be controlled.

2. PLAY/PAUSE - Pressing the Play/Pause button once will start playback. Pressing a second time places the unit in to Pause. Press once more to resume playback. If the drawer is open, the Play/Pause button will close the drawer and commence play.

3. STOP/EJECT - Pressing the Stop/Eject button, will stop the disc if playing. Pressing while in STOP will open the tray.

4. NEXT/SEARCH - Pressing the Next button once will select the next track. Repeatedly pressing the Next button will continue to increment forward through the disc. The Next function will “wrap” around the end of the disc, i.e. jump from the last track back to the first.

If the disc is already playing, pressing and holding the Next/Search >> button for a few seconds, will enter high speed forward search mode. Pressing Play will cancel search mode and resume playback from the current point.

5. PREV/SEARCH - Pressing the Prev button once will select the next track. Repeatedly pressing the Prev button will continue to increment backwards through the disc. The prev function will “wrap” around the beginning of the disc, i.e. jump from the first track back to the last.

If the disc is already playing, pressing and holding the Prev/<<Search button for a few seconds, will enter high speed backwards search mode. Pressing Play will cancel search mode and resume playback from the current point

6. REPEAT - To enter the repeat menu, press the Repeat/Lips button. Repeat press to cycle through the options. When the desired mode is displayed, do not touch the buttons. The selected repeat mode will be actioned after three seconds and the display will revert to normal operation. The options are: Normal Play, Repeat Disc and Repeat Track.

7. LIPS - To enter the LIPS menu, press and hold the Repeat/Lips button when in stop. Repeat press to cycle through the options. When the desired mode (driver) is displayed, do not touch the buttons. The selected LIPS mode will be actioned after three seconds and the display will revert to normal operation. Please see page 16 for a list of the available LIPS modes (drivers).

Connections

Analogue connections

RCA. Connect the Left and Right outputs to your amplifier CD input using good quality phono-to-phono (RCA/cinch) interconnects to provide maximum audio performance.

XLR. Balanced connection is available via XLR connectors to a suitably equipped amplifier such as the Leema Elements Integrated amplifier, or a suitable pre-amplifier such as the Leema Pyxis.

DUAL OUTPUTS. Uniquely, the Elements CD features dual outputs in both unbalanced RCA phono and balanced XLR formats. When connected to a suitably configured Leema LIPS-enabled system that contains two Leema amplifiers in a bi-wired mode, the very highest signal quality is maintained to the second amplifier because the player can be connected directly rather than, as is the norm, via the pre-amplifier stage of the main amplifier which will inevitably degrade the signal quality.

Digital connections

SPDIF coaxial digital output. This output provides a transformer isolated standard Sony/Philips digital interface. Use a good quality cable designed for SPDIF applications. Audio cables must not be used as they will seriously degrade the data stream.

SPDIF optical digital output. This output uses the standard TosLink optical connector format for SPDIF digital audio connection. This connector type is often useful in systems that may have earth loop issues, since the optical connector carries no earth conductor. Optical cables can be fragile so care is required in their handling.

LIPS

The LIPS cables are directional and must be connected the right way round for the system to operate. No harm will be done if cables are connected the wrong way round, the system will simply not work correctly. The black plug is inserted in to the sending unit and the red plug in to the receiving unit. The chain will normally be:

Player (e.g. Elements CD) > Amplifier (e.g. Elements Integrated) > Accessories

If a home automation controller is to be installed, the order would be:

Controller > Player > Amplifier > Accessories

This type of installation can be quite complex and is best performed by a Leema dealer.

In a basic system comprising two audio units, the LIPS cable will be arranged as follows:

Black (Elements CD) > Red (Elements Integrated)

The following section is intended for installers, system integrators and third party manufacturers.

What is LIPS?

LIPS or Leema Intelligent Protocol System, facilitates communication between various items in a Leema audio system. It allows units such as Tucana, Antila, Elements CD or Elements Integrated to control other items in a chain. Leema's constellation 5.2 surround system is a good example, where a Tucana controls a Hydra and Corvus. 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 Hydra installed as part of a surround system 'knows' that it won't be required when listening to a stereo source such as CD. Therefore, when the Hydra 'sees' the CD input, it powers itself down to conserve energy.

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

LIPS Specifics

The LIPS bus is driven by an open-drain output. Leema can supply interface modules as 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.

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 Protocol Headers For further information, please contact Leema Technical Support.

LIPS modes

Elements CD may be used as a LIPS master to control other Leema components, or as a slave to be controlled by other equipment such as a home automation system. Additional modes will be added as new Leema products are developed.

To enable these various LIPS modes, an edit menu is used to select the appropriate setting.

To enter the edit mode, with the unit in stop, press and hold the Repeat/Lips button on the Elements CD front panel. The LIPS modes may now be cycled through by repeatedly pressing the Repeat/Lips button until the required mode is displayed. If the buttons are not pressed for a few seconds, the edit mode is exited and the selected LIPS mode is enabled.

The modes are displayed in the display as follows:

LIPS OFF	This is the default setting and should be used when the player is being used on its own as a normal player.
SLAVE	LIPS slave mode. This allows the player to be remotely controlled via a LIPS interface unit.
TUC1	Master mode to control a Leema Tucana MKI.
TUC2 BAL	Master mode to control a Leema Tucana MKII - Elements CD connected Balanced Out to Balanced in.
TUC2 RCA	Master mode to control a Leema Tucana MKII - Elements CD connected RCA out to RCA CD input.
HYDRA 1/2	Master mode to control a Leema Hydra power amplifier.
PYXIS	Master mode to control a Leema Pyxis preamplifier.
PULSE 1/2	Master mode to control a Leema Pulse MKI. There was in fact no MkII version.
PULSE 3	Master mode to control a Leema Pulse MKIII.
ELEMENTS BAL	Master mode to control a Leema Elements Integrated amplifier-Elements CD connected Balanced Out to Balanced In.
ELEMENTS RCA	Master mode to control a Leema Elements Integrated amplifier-Elements CD connected RCA Out to RCA in.

Elements CD Message Codes

When set as a LIPS Master, Elements CD will display any changes made to the volume level and input selection in the following manner, when using the remote: Additional inputs and functions may be added as new products are developed.

0 - 248 Volume level representing minimum to maximum LIPS volume.

PHONO	Phono input
CD	CD input
BAL	Balanced input
LINE/AV	Line/Audio Visual input
TUNER	Tuner input
AUX	Aux input
AVDIR	AV Direct input
TAPE	Tape input
MULTI 1	Multi channel input 1
MULTI 2	Multi channel input 2
SPDIF	SPDIF Digital input
COAX 1	Coaxial 1 Digital input
COAX 2	Coaxial 2 Digital input
COAX 3	Coaxial 3 Digital input
OPT1	Optical 1 Digital input
OPT2	Optical 2 Digital input
OPT3	Optical 3 Digital input
USB	USB Digital input
INPUT 1	Line input 1
INPUT 2	Line input 2
INPUT 3	Line input 3
JACK	Front input Jack.

Messages during normal use

Initialising	Resetting all systems ready for use
Play CD DA	Play normal CD
Play ROM	Play Mp3 disc
Pause	Pause disc
Stop	Stop disc
Search >>	Search disc Forwards
<< Search	Search disc Backwards
Disc Not Found	Disc not read/identified
No Disc	No disc in tray
Open / Close	Tray Status
Tray Open	Tray open ready to receive a disc
Reading	Reading TOC (the discs Table Of Contents)
Loading	Loading disc
Opening	Opening tray
Disc Error	Disc load error
Tray Error	Tray mechanical error
Invalid	Invalid track number, track does not exist on disc
Stop Timeout	Error Message
Programmed On	Programmed ON (LIPS function)
Programmed Off	Programmed OFF (LIPS function)
Play Rpt disc	Plays complete disc from beginning to end then repeats from beginning
Play Rpt Track	Plays complete track from beginning to end then repeats from beginning
Eeprom Written	Internal Memory re-written
Bye Bye	Switching off

Infra-red codes

The following codes may be used to program universal remotes using Sony 12 bit protocol:

IR DEVICE = 17 (Elements CD/Antila specific)

16 = LIPS INPUT INCREMENT, 17 = LIPS INPUT DECREMENT, 21 = POWER TOGGLE, 22 = EJECT, 48 = PREV, 49 = NEXT, 50 = PLAY, 56 = STOP, 57 = PAUSE, 59 = SCAN TOGGLE

For direct track access (as per Sony CD1 format)

32 = num 0, 0 = num 1 8 = num 9, 39 = +10

The above are used as follows: +10, num, num e.g. +10,1,2 = track 12 etc.

In addition to Elements CD specific codes, the player is able to process amplifier codes for communication via LIPS:

IR DEVICE = 16 (Amplifier, e.g. Tucana etc.)

0 - 6 = INPUTS 1 - 7, 16 = INPUT UP, 17 = INPUT DOWN, 18 = VOLUME UP, 19 = VOLUME DOWN, 20 = MUTE TOGGLE
21 = POWER TOGGLE

EC Declaration of Conformity

In accordance with EN ISO 17070-1:2004

We **Leema Electro Acoustics Limited**

of **Llanfair Caereinion
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 CD Player Model Name Elements CD**

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: **23/08/2011**



Audio Specifications

Typical figures:

Frequency response 20Hz-20KHz: +/-0.3dB

Distortion - 20Hz: 0.005% 1KHz: 0.001% 20KHz: 0.001%

IM distortion 19+20KHz: 0.001%

Linearity @ -100dB: +/-0.5dB

Crosstalk @ 10KHz: -100dB

Crosstalk @ 1KHz: -118dB

Signal to Noise ratio (A weighted): 105dB

Output Level: 2.3VRMS for 0dBFS

Jitter 1KHz: < 50pS

Jitter total correlated: < 150pS

DACs: 24bit/192kHz with low jitter receiver.

Specifications subject to change without notice.

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