HANDBOOK

LEEMA ACOUSTICS
CONSTELLATION SERIES

LIBRA PRECISION DAC
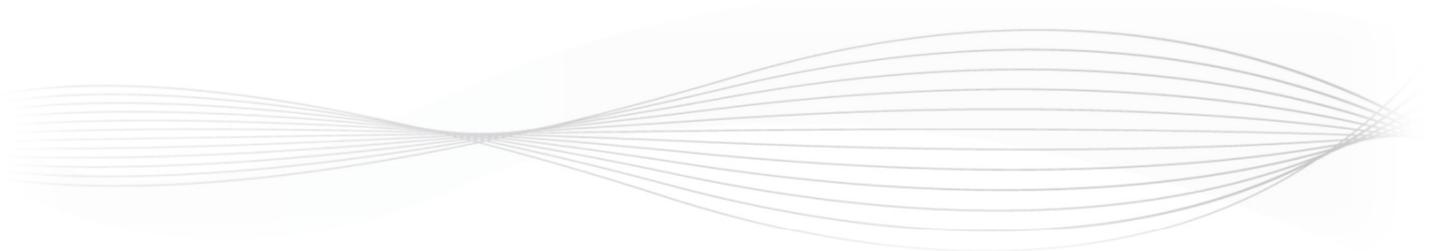
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EC Declaration of Conformity
In accordance with EN ISO 17070-1:2004

We   Leema Electro Acoustics Limited

of   Severn Farm Industrial Estate
            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: Libra Digital to Analogue Converter,

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: Nia Davies
Position: Managing Director
Done at: Leema Electro Acoustics Ltd.
On: 31/07/2015

CE 14

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Introduction

Congratulations on your purchase of Leema's class-leading Libra DAC.

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.

The Leema Libra DAC provides playback for S/PDIF and USB digital sources. The board comprises two separate interfaces, one for S/PDIF sources and one for USB playback. The S/PDIF interface offers three co-axial inputs via RCA (Cinch) connecters and three optical inputs using standard Toslink type connectors. Both interfaces offer all common sampling rates, the Toslinks, from 32kHz to 192kHz at 16 and 24 bit resolution.
The coaxial and USB inputs offer all of the common data rates from 32kHz to 192kHz at 16 and 24 bit resolution. The USB interface operates in asynchronous mode using Leema's own hardware platform and firmware. The interface provides full electrical isolation from the source computer, ensuring that noise from the computer's power supply does not degrade the audio performance. Both interfaces feature ultra-low jitter, due to their precision master clocks.

In addition, there are two I^2S inputs, one of which features configurable pin assignment.

There are also two AES/EBU connectors to allow connection to professional sources.

Purchasers should read and follow this instruction manual, paying particular attention to the hardware and driver installation sections.

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 Libra DAC to the rest of your system, please ensure all required input/output cables are connected BEFORE inserting the mains power lead and powering for the first time.

User installation and safety advice

Please ensure that the mains voltage of your new Libra Precision DAC 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 DAC 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 DAC.

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 DAC 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 DAC in damp conditions, e.g. outside of the house.

Keep away from direct sunlight and other heat sources and ensure adequate ventilation around the DAC 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 product warranty.

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

Overview

Libra is a state of the art DAC, capable of decoding the latest high bitrate audio formats including DSD128 and DXD. It may be used as a system controller with an entirely Leema system or as a preamp in a mixed system.

Environmental Issues

All waste materials generated as part of the manufacturing process are recycled.
The power drain from all Leema electronics, in standby or power off modes, has been optimised to a negligible level.
All Leema products 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 entirely designed and manufactured in the UK.

Contact Us

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

Rear Panel Connections

BLUETOOTH
ANTENNA
FOR OPTIONAL
BLUETOOTH
MODULE

DIGITAL
INPUTS

LIPS CONTROL
CONNECTIONS

POWER
INLET

LIPS 2

LIPS

OPTICAL   COAX   USB   AES/EBU

I^{2}S

ANALOGUE 1   ANALOGUE 2   ANALOGUE 3   OUTPUTS

ANALOGUE INPUTS, INDIVIDUALLY
SELECTABLE AS RCA/CINCH
OR XLR VIA PUSH SWITCH

RCA/CINCH
AND XLR

FIXED VOLUME OR
VARIABLE VOLUME
VIA PUSH SWITCH
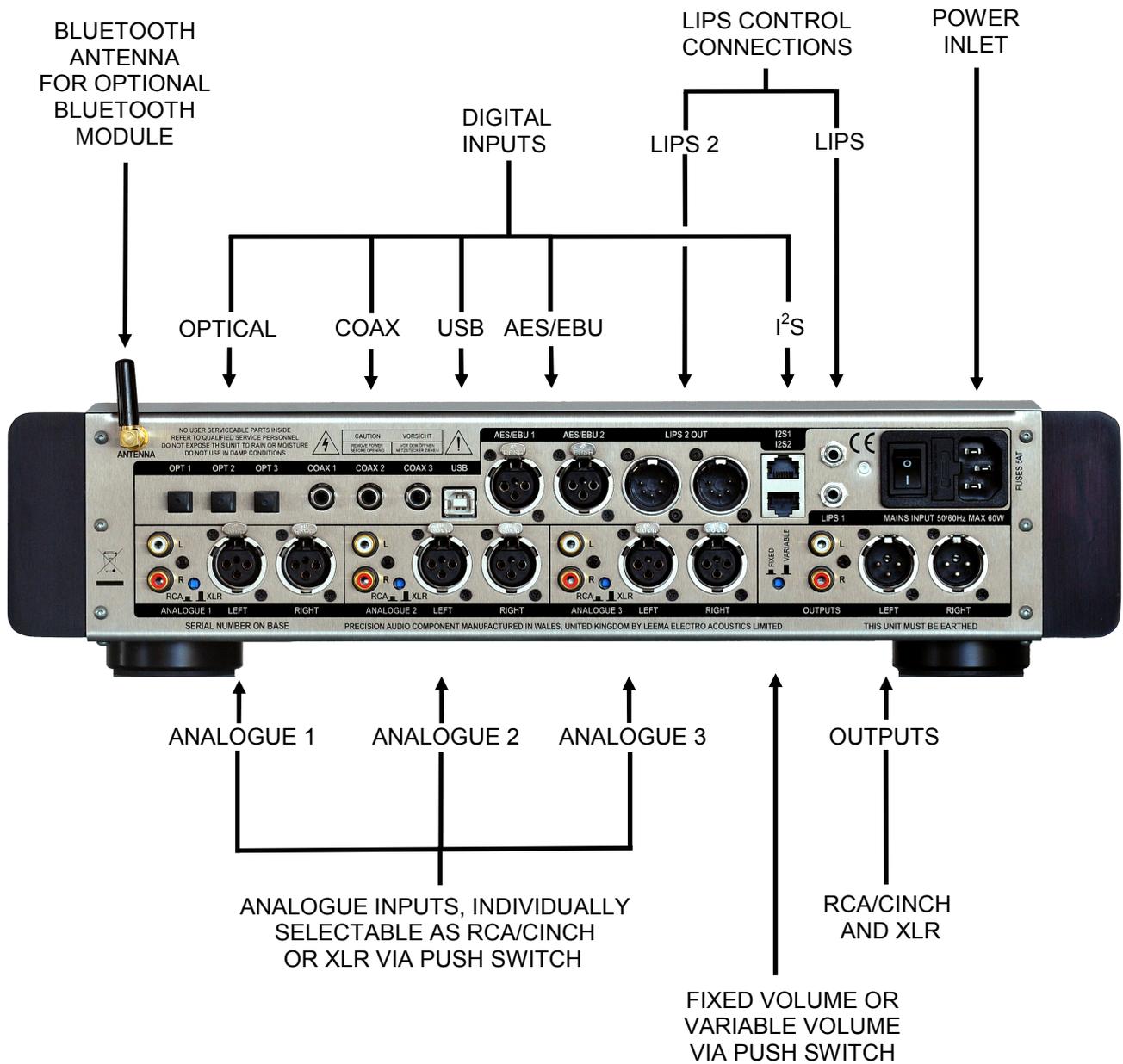
Input Connections

Digital: Three coaxial and three optical inputs accept conventional S/PDIF digital audio streams at up to 24 bit, 192 kHz data rates, plus DSD 64

USB: Leema's own class leading M1 USB interface provides a connection for computer based audio replay. Windows, Mac and Linux based machines can be accommodated. Windows machines will require a driver to be installed (included). The USB interface can decode very high data rate audio including DSD 64, DSD 128 (using the DoP framework), very high resolution DXD at 24 bit 352.8 kHz and PCM at 24 bit 384 kHz. The interface is fully asynchronous allowing for very precise control of the data rate from the computer in a frame by frame basis. This ensures that the DAC exhibits vanishingly low levels of jitter. Spinning electron galvanic Isolation completely isolates the Libra from the computers noisy power supply. These two features ensure that the quality of replay from a computer source is as good as is technically achievable.

RJ45: High end transports often feature an I^{2}S output. There is a standard pin configuration but not all manufacturers adhere to this. The Libra features two I^{2}S interfaces, one of which is pre-wired to meet the standard and the other has pin connections definable in software. This allows any I^{2}S transport to be connected to the Libra.

AES/EBU: Professional equipment uses the AES/EBU standard for digital audio transmission. The Libra allows for this with two standard professional XLR sockets.

Analogue: There are three analogue inputs which can be individually configured to be unbalanced via RCA/Cinch connectors or balanced via XLR connectors.

Bluetooth: An optional Bluetooth module can be incorporated which allows for music to be streamed from a suitably configured Android or Apple device.

Output Connections

Line Outputs: Line outputs to the pre-amplifier or power amplifier are available in both balanced mode, via two XLR sockets, one for left and one for right, or unbalanced (single ended) mode via a pair of RCA/Cinch sockets.

Headphone Out: A headphone output is available on the front panel.
The output uses a 3.5mm mini-jack as found on personal stereo headphones.
Headphones should have a minimum impedance of 32 Ohms.
It is advisable to unplug headphones before powering down the DAC.

LIPS connection

LIPS cables are directional and have one black end and one red. If the Leema Libra DAC is controlling other units, the black connector should be plugged in to either LIPS socket on the Libra DAC and the red connector plugged in to the next component. If the Libra DAC 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 Libra DAC.

Two types of LIPS connection are available, Unbalanced for short range use using the enclosed 4 pole connector lead.

Alternatively, where the controlling unit is remote from the amplifiers, a balanced LIPS lead can be employed via 5 pin XLR. Please contact Leema to discuss your requirements.

Cables

Never underestimate the importance of good quality interconnecting cables. The higher the system resolution, the more easily the differences between cables can be discerned. Leema recommend Leema Linx cables for optimum system synergy.

Front Panel Operation

Standby: The Standby button toggles Libra between ON and STANDBY. If a LIPS connection is used, the power status of any other Leema component connected via LIPS will also be controlled.

Input & UP/DN: In its normal mode (MENU/ESC button is unlit) the knob selects the input source. The knob can be rotated in either direction in order to cycle through the available input connections.
In menu mode (MENU/ESC button lit), rotating the INPUT & UP/DN knob will cycle through the various menu setup options available.

Menu/Esc: Pressing the MENU/ESC button will enter the Libra's edit menu.
The button will light to display the machines status and the graphic display will now show the various menu options available. Pressing the button again will leave the MENU mode and the button will no longer be illuminated. At this point, any setting changes will be committed to the Libra's internal memory.

Select: The SELECT button is only active when in the menu edit mode (MENU/ESC button is alight). Once a desired setting is displayed in the graphics screen, pressing the SELECT button will activate the chosen setting and apply the required configuration.

Volume: The function of the Libra's VOLUME knob is definable in the user setup menu and by the push switch on the rear panel.

States **a** or **b** below are defined by the switch on the rear panel next to the output sockets;

a. The Libra can be set to function like a normal DAC, with no onboard volume control. You would use this mode if using the Libra in conjunction with an Integrated amplifier such as a Leema Tucana, or a pre/power combination such as a Leema Pyxis and Hydra amplifiers.
The volume control is still active for the headphone amplifier**.** However, the volume control data is still output from the Libra's LIPS connections and can be used to remotely control the onboard volume controls in other Leema products such as the Hydra II or Elements power amplifiers.

b. Alternatively, the volume control can be enabled and will regulate the output level in the conventional way. This mode would be used when the Libra is acting as a preamplifier in a system with power amplifiers such as the Leema Hydra II or Elements power amplifiers set to fixed gain (conventional) mode.

Front Panel Operation Continued

Mute: When pushed, this button mutes the output by ramping down the volume to zero and remains in this state while lit. A second push will restore the previous volume level and the light will extinguish.

HT Direct: This button invokes a special mode for integration into a Home Theatre. When selected, the Libra will automatically select the input from Analogue 3 that corresponds to the left and right output from a home cinema processor or a universal player which has onboard multi channel decoding.
The volume will then ramp up to a predefined point which corresponds with unity gain i.e. the voltage level coming in to the Libra is the same as the voltage level at its output sockets.

MP3: The front panel MP3 input allows for the easy connection of a portable music player or mobile phone/tablet computer using a simple 3.5mm jack lead.

Phones: The Libra features a very high quality dedicated headphone amplifier capable of driving the majority of quality headphones (minimum impedance 32 Ohms) with ease.

Libra Remote Control Precision DAC commands

The Libra remote control is designed to operate a Leema
CD player, an amplifier and a DAC which allows the control of a
Leema system from just one remote control. Simply select the
device you wish to control and the correct buttons will be enabled.

Power: There are two power buttons. The left button (ALL)
turns all the units in a Leema system on or off simultaneously.
The right button (IND) allows individual units within an Leema
system to be turned on or off independently by first selecting the
required device button (CD, AMP or DAC) then pressing the "IND"
power button. When powered on, the unit initialises then, if
applicable, the last input selection will be restored and the volume
set to a low level.

Mute: Pressing the mute button once while the system is
playing will cause the volume to rapidly fade to zero;
"---" is then displayed. A second push of the button will restore the
volume level to its previous setting.

Input: The input - and + buttons cycle through the available input
sources, one-button push at a time. The audio mutes for a fraction
of a second between selections. Inputs may also be selected
directly by using the numeric buttons. Note that the DAC button
must have been pressed previously for these buttons to address
the Libra Precision DAC.

Volume: This function only operates if the DAC has its local
volume control mode enabled via the back panel switch, or is
operating as a LIPS master for an amplifier connected via LIPS.

Otherwise it will control the volume of the amplifier directly.

Two buttons, (+) for up and (-) for down, control the volume.
Short presses on the volume buttons will change the volume in
small increments. Press and hold the volume up or down
buttons to smoothly raise or lower the volume.

In order to change the batteries in your remote control, simply unscrew
the rubber feet from the base and remove the base plate.
The battery holder is then accessible. Replace the two AAA batteries,
taking care to ensure they are fitted the correct way round…..plus to + and minus to –.
Good quality Alkaline type batteries must be used.
To reassemble, simply replace the base plate and carefully screw in the rubber feet.
Do not overtighten.

Setup Menus, Basic Settings.

1> SET ABSOLUTE PHASE

Options:

1. Non Inverting
2. Inverted!

Explanation> There are occasions where the absolute phase of a recording or indeed some element of the reproduction system has become phase reversed resulting in the loudspeaker cones moving backwards when they should be moving forwards.
Some people are sensitive to phase so this menu setting allows for the phase to be reversed (inverted).

2> SET FILTER BANDWIDTH

Options:

1. Normal   -3 dB at 42 kHz
2. Wide   - 3 dB at 82 kHz
3. Auto

Explanation> The minus 3 dB point of the output filter applied to the audio signal can be adjusted here to suit the system sample rate.
Source recordings which were produced using a sample rate of 48 kHz or less will contain no usable audio content above about 22 kHz, with a CD file the practical limit is a little over 20 kHz. Filtering is applied to the digital signal such that any artifacts above these limits are removed.

Higher sample rate recordings have a higher high frequency limit and therefore the filter can be opened out to allow high frequency information up to about 40 kHz to be passed.

Some people prefer to listen to low sample rate material with high (wide) filtering applied. Others like high sample rate material with low (normal) filtering applied.
Settings 1 or 2 allow normal or wide filtering to be applied to all sample rates.

Setting 3 (Auto) will apply the appropriate filter frequency automatically, depending on the system sample rate.

Setup Menus, Basic settings cont'd

3> HT DIRECT INPUT

This menu toggles the status of analogue input 3. This input can be assigned as the front left and right channel input source to be used in a home cinema setup, usually from a home cinema processor or a suitable player with integrated surround sound decoding.

Options:

1. HT Input not used.
2. HT> Analogue 3

Explanation> When set to "not used", the analogue input 3 is accessible as a conventional input via the rotary input selector knob or via the remote control.
When set to analogue 3, this input is allocated to the HT direct button and removed from the sources available via the input selection knob.

4> CD INPUT SETUP

Options:

1. No CD
2. Analogue 1
3. Analogue 2
4. Analogue 3….Not available when allocated to HT Direct.
5. Coax 1
6. Coax 2
7. Coax 3
8. Optical 1
9. Optical 2
10. Optical 3
11. I^2S
12. I^2S

Explanation> The Libra Precision DAC can be used with an Antila CD player or any other CD player with suitable digital outputs, as a two box CD solution. This menu defines which digital input is to be used by the CD transport. This input will be automatically selected when CD is selected for replay on the front panel.

Setup Menus, Basic Settings Cont'd

5> INPUT VOLUME DROP

Options:

1. Drop on Input Change
2: Leave on Change

Explanation> The Libra DAC can be set to automatically drop the volume to a low level when changing sources. This ensures that when inadvertently changing input from a source playing light classical to a source playing thrash metal, no damage can result.

This feature can be enabled or disabled here.

Please note, the No Drop mode should be used with caution.

6> SET LCD BRIGHTNESS

Explanation> The brightness of the display can be adjusted here for user preference**.**

The brightness will revert to a high level when navigating menus and revert to the user selected level in normal operation.

When the unit is placed in standby, the display will dim to its minimum level and show the Leema logo.

Setup Menus Advanced

1> SET LCD OFF TIMER

Options:

1. LCD ALWAYS ON
2. OFF IN 5 SECONDS
3. OFF IN 10 SECONDS
4. OFF IN 30 SECONDS

Explanation> The LCD display can be set to automatically turn off after a preset period of time following a command such as changing input or adjusting the volume. The display will reactivate upon such an action then turn off following the preset period defined in the menu.

2>INPUT NAMES: All input names are fully editable.

Explanation > The rear panel is labeled Optical IN 1, IN 2, IN 3, etc. These are the default names used by the firmware, however, the name may be changed as the user requires to make it easier to identify an audio source.

For example, if a satellite receiver is connected to the optical input 1, this input could be renamed to 'SAT'. Input name can be up to ten characters long.

EDITING AN INPUT NAME

Press the MENU button.
Using the input knob, locate item 2, "INPUT NAMES" and select by pressing select button. Rotating the Input knob, locate the input name to be edited, again, press the select button.

The display will now show:

EDIT :<input name>
ALIAS :<Original name>

Notice that the first letter of the input name is flashing as a block.

To change the letter, press select. The letter will now be underlined. Rotating the input knob will scroll through the available letters and symbols. These are:-
ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789\-+:,

When the required letter or symbol has been located, press the select button. This will return the display to a flashing block. The Input knob can now be used to locate the next letter to edit. Repeat the process until the name is displayed as required.

Finally, press the MENU button to exit the editor and once again to exit the MENU unction. During the edit process, the original name (as used on the rear panel) is shown as ALIAS for reference.

Setup Menus Advanced, Cont'd

3> EDIT I^{2}S ONE INPUT PINS

I^{2}S comprises four signals: SDATA, SCLK, LRCK and MCLK.

The pin assignment of these signals may be edited by using the menu select button and input knob. Each signal may be set to any of the eight pins in the RJ45 connector. Each signal must be set to a different pin and the editor will check for any duplicated pin numbers after the user has finished editing.

The remaining four pins in the connector are used as signal grounds. It is not necessary for the user to define these. After the user has defined the four signal pins, the system will automatically define the remaining pins as grounds.

Explanation> The pin assignment of the I^{2}S2 input can be freely defined here. This allows any device equipped with an I^{2}S output to be connected to the Leema Libra DAC, no matter what the connection pin configuration. Please see manufacturers documentation regarding pin configuration.

4 > LIPS Setup

Options:

1. OFF
2. PREAMP
3. DAC

Explanation> The Leema Libra DAC can be used within a Leema LIPS connected system:

a. As a conventional DAC only, or:
b. As a preamplifier with analogue volume control. This must be enabled via the push switch on the rear panel.

Select the appropriate option for your system.
If LIPS is not required then simply select OFF.
PREAMP will enable LIPS data for remote volume control with a Leema power amplifier.
DAC will disable the internal volume control for use with an integrated amplifier.

OPTION 3 MUST ONLY BE SELECTED WITH EXTREME CAUTION AND WITH NO AUDIO SOURCE RUNNING.

Setup Menus Advanced, Cont'd

5> SYSTEM RESET

Options:

1: CANCEL AND EXIT
2: LEAVE NAMES
3: FACTORY RESET

Explanation > Allows the system to be quickly reset to factory defaults.

Option 1 will not reset and will exit the reset sub menu.

Option 2 will reset all menu options but leave edited input names.

Option 3 will reset all menu options and reset input names to defaults.

LIPS

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 the Elements Integrated and Tucana II, to control other items in a chain. Leema's 5.2 surround system is a good example, where a Tucana II controls a Hydra II 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 II 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 II 'sees' the CD input selected, it powers itself down.

Each Leema unit can be controlled via the LIPS bus. Controlling an Elements Integrated 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 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.

Infra-red codes.

For further information, please contact Leema Technical Support.

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

IR DEVICE = 20 (DAC)
IR Commands:

The following are used for direct input selection

0 to 9 = Numeric buttons 1-10
32 = button 0
39 = 10+ button

----

input assignment:

0 = OPTICAL 1, 1 = OPTICAL 2, 2 = OPTICAL 3
3 = COAX 1, 4 = COAX 2, 5 = COAX 3
6 = AES/EBU 1, 7 = AES/EBU 2
8 = USB
9 = BLUETOOTH
10 = ANALOGUE 1, 11 = ANALOGUE 2, 12 = ANALOGUE 3

----

16 = INPUT UP, 17 = INPUT DOWN,
18 = VOLUME UP, 19 = VOLUME DOWN,
20 = MUTE (TOGGLE)
21 = POWER (TOGGLE),
42 = HOME THEATRE DIRECT
84 = DISPLAY (TOGGLE).
93 = ABSOLUTE PHASE (TOGGLE)

Specifications

Frequency Response, 20Hz to 20kHz +/- 0.25dB.
Distortion at 1kHz, better than 0.001%
Crosstalk at 20kHz, better than -95dB.
THD at 0dBFs, better than 0.005%
Jitter at 1kHz, less than 50ps.
Output levels, fixed gain mode, 0dB at 1kHz, unbalanced=2.1V rms, balanced = 4.2V rms

DAC: Quattro 24bit/192kHz with low jitter receiver. Leema USB-M1 24/192 Module.

Specifications subject to change without notice.

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

DIGITAL INTERFACE BOARD
INSTRUCTIONS

LEEMA
ACOUSTICS

Index

Introduction

Leema's state of the art M1 USB board allows for state of the art connection via USB. For correct operation of the USB interface a suitable driver must be installed on the host machine. This is supplied on a disc with the Libra DAC. Please follow the installation instructions carefully.

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.

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Made in the UK

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

Contact Us

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

Windows® USB Driver

A driver is provided for use with the Microsoft Windows® operating system. The driver supports all versions of Windows from XP to Win7 in 32 bit and 64 bit versions (with current service packs). If the user has an option, Win7 is preferred. The driver must be installed if the Elements Precision DAC is used with Windows, otherwise the unit will not be installed correctly by the operating system.

Apple OSX® and Linux® operating systems do not require an additional driver.

Driver Installation

The driver is supplied on CD.

Step 1. Ensure that the USB port on the rear of the Libra DAC is connected to a high speed USB port on the computer. Note that the port must be high speed - the Libra USB digital interface cannot be used on a full speed port.

Step 2. Ensure that the Libra DAC is powered on.

Step 3. Insert the CD into the computer's CD drive and navigate to the Leema USB Audio Driver folder.

Step 4. Double click 'setup.exe' and follow the instructions on screen.

The following screen shots show a Windows 7 installation. Installation in other Windows versions is similar.

Installation cont'd

THE INSTALLATION WELCOME SCREEN
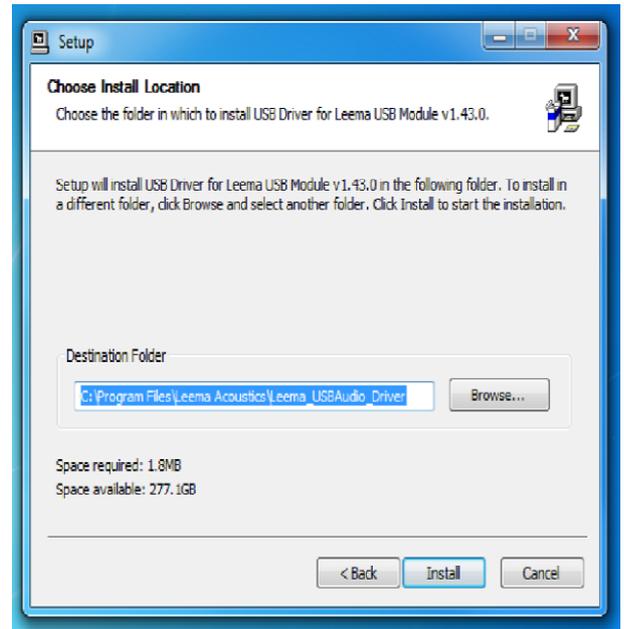
CHOOSE A LOCATION FOR INSTALLATION
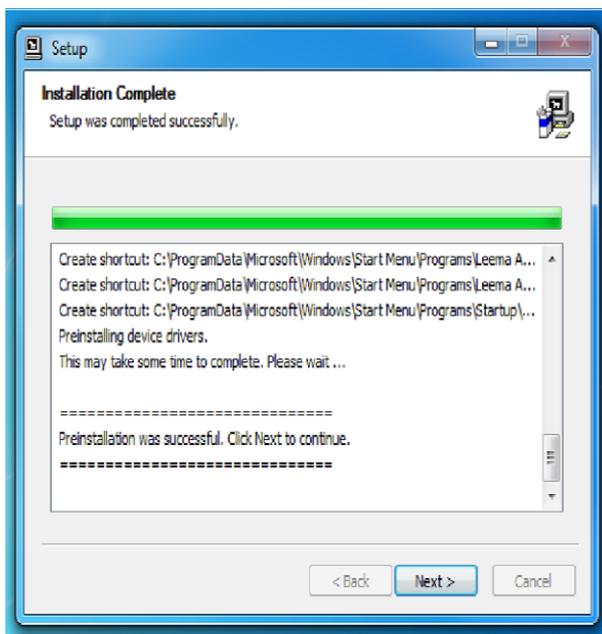
COMPLETING THE INSTALLATION

Installation cont'd
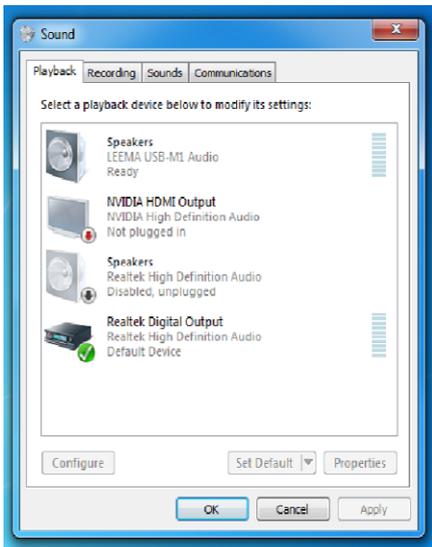
Leema USB-M1 shown in audio devices
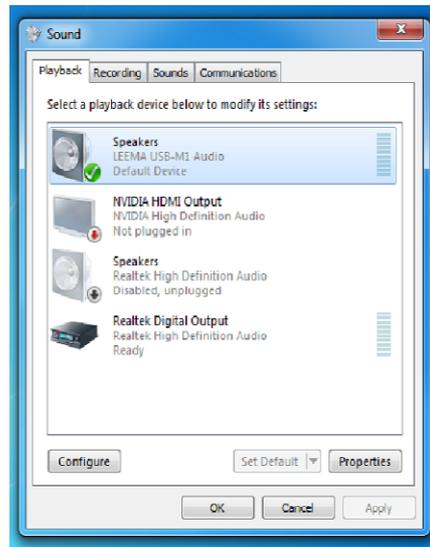
Select USB-M1 and set as default
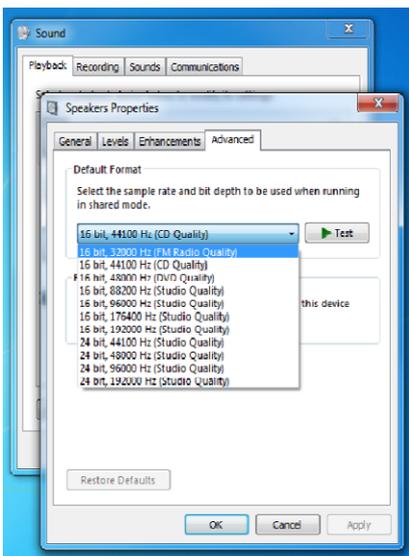
Available sample rates shown
in Windows 7

Note: In Windows XP, the sample rate cannot be changed in "Properties".

In this version of Windows, the sample rate can only be selected from within the playback application being used.

To ensure Windows does not re-sample the audio, causing a loss in quality, select a sample rate which matches that of the audio material being played.

Using the ASIO driver will give the best audio quality playback and is mandatory for DSD playback.

Finalising Driver Installation

In some versions of Windows, the machine must be re-booted after driver installation, so this is recommended.
If the Leema USB-M1 is still not found, switch off the DAC and then switch back on. This will cause the USB device to detach and re-attach. The operating system should then recognize the DAC and configure the driver.

Using the USB interface

The USB interface can be used for playing audio from media players such as Windows Media Player etc.
It may also be used to render audio playback from applications such as Spotify™ and Napster™.

Note that the USB interface is a playback only device - It is not possible to record using the USB connection.
To assemble recordings on the PC, it is better to RIP CDs or use downloads including the high resolution offerings from companies such as HD Tracks.

The USB interface can be used with all sample rates from 32 kHz to 192 kHz at 16 or 24 bits.

S/PDIF Interface

The S/PDIF interface offers three optical inputs, which can operate at all of the standard data rates between 32 kHz and 192 kHz at 16 or 24 bit. The three co-axial RCA (Cinch) inputs may also be used with sample rates from 32 kHz to 192 kHz at 16 or 24 bits.
All sample rates are configured automatically.

Cables

Use a dedicated S/PDIF or video cable to connect an S/PDIF source. Using an audio cable will degrade the data.

Asynchronous USB

Leema Acoustics are one of only a select few manufacturers that can offer the very highest quality audio playback via USB, using a system called Asynchronous playback.

In a conventional USB playback scenario, the computer varies the speed of the digital audio stream emanating from it's USB port, itself. The DAC has no option but to slavishly follow this variable data rate. This is not a suitable method for producing high quality audio since it results in high jitter which in turn results in high distortion.

Asynchronous USB playback requires the DAC to accurately regulate the data output speed of the computer to practically eliminate jitter based distortion.

In practice this is a very complex task and requires the computer to have a free USB 2.0 port, connected to the DAC via a suitable high speed USB 2.0 cable.

The Leema Libra DAC is a USB high speed device which upon connection, invokes the USB port's high speed mode. This mode is only available under USB 2.0.

Windows does not natively support High data rate audio formats, hence the need for a driver to be installed.

Windows 8/8.1 installation

In Windows 8/8.1, the driver works under "Windows 7 compatibility mode".

These instructions assume that you are using the disc supplied with the Libra, if not, you can download it from our website, www.leema-acoustics.com ...navigate to the Libra DAC, click the DOWNLOADS tab and the USB driver is made available to download. However, If you are using the disc jump to step 9 below;

1. Navigate to the Leema website and select "downloads" from the Libra page.

2. Scroll to bottom and select USB driver for Windows systems v1.46.

3. Click on the disc icon then select "SAVE" when the download bar opens at the bottom.

4. When the download finishes, select "OPEN" which will automatically open the downloads folder under file explorer for you, or close the bar and open the downloads folder yourself.

5. The downloaded files are compressed..............Windows8 knows this, so it automatically gives you the option to extract them on the top menu bar. Select "EXTRACT" on the left, then "EXTRACT ALL" on the far right.

A box opens asking where you would like the extracted files to be put. The default is downloads, which is fine.

6. Tick the box that says "SHOW EXTRACTED FILES". Select "EXTRACT".

Another box opens under file navigator with a folder at the top called "ELEMENTS USB DRIVERS v1.46"

7. Double click on the folder to open it and a list of files are displayed.

8. Double click on the 14th file down, it says "SETUP" with the icon of a little computer and it says "APPLICATION" under file types.

A warning box opens saying "Windows protected your PC"

9. Select "More Info" (written in purple, it's not obvious that you can select it). Select "RUN ANYWAY"

10. Another box opens, headed "User accounts control", asking if you want to make changes. Select "YES" at the bottom.

11. Yet another box opens telling you that the operating system is not supported. Select "OK" at the bottom.

12. Another box opens up asking if you would like to run in compatibility mode. Select "RUN IN COMPATA-BILITY MODE"

13. And another box opens under USER ACCOUNT CONTROL which asks "Do you want to allow the program to make changes to your computer".....select "YES".

The Leema install screen will now be shown.....................make sure you have the DAC connected and switched on. The driver will not install without the Libra connected via USB and switched on.

Follow the instructions........................

14. When the install is finished a warning box will open saying "Running this app could cause problems with your computer"....select "Run Anyway".

A red T icon will briefly appear at the bottom right of the **desktop page** for a few seconds then it will be automatically moved in to "show hidden icons" (an ^ at the bottom right in the system tray).

15. Now open the Charms Bar on the right of the screen and select "SETTINGS" at the bottom, then "CONTROL PANEL" near the top.

16. Select "HARDWARE AND SOUND" then navigate to "SOUND".........."MANAGE AUDIO DEVICES".

17. Set the Leema USB1 module to be the default device.

18. Press "OK" or "APPLY" then shut all the boxes.

Select the USB input on the Elements DAC.

Open your music player................Such as Foobar or J River...select an appropriate track

Press "PLAY", the display on the DAC should report back the sample rate, ASYNC and FB< I > and you should have music playing.

Bluetooth Module Instructions

The Leema Libra DAC incorporates a high quality BlueTooth interface for easy connection to most smart phones and tablets.

The module supports the latest high quality codecs including APTX and AAC.

The module will automatically negotiate the highest quality codec available from the

sending phone or tablet.

To pair a phone or tablet to the module, firstly, select the BlueTooth input on the Libra.

Wait 10 seconds for the Libra BlueTooth module to start broadcasting.

Then enable Bluetooth on the phone or tablet.

Ensure that the phone or tablet is scanning/searching for other BlueTooth devices.

When the Libra is found, the phone or tablet will display "LeemaLibra" followed by a

6 figure unique identity code.

To the right of the LeemaLibraxxxxxx is a small icon like a cog (Android 5).

Pressing this brings up a list of content that will be broadcast to the Libra.

Ensure that only the MEDIA check box is ticked., then press OK

Select "LeemaLibraxxxxxx" to pair the two devices.

The two devices should automatically connect and display

"**LeemaLibraxxxxxx connected (no phone).**

Now simply open your favourite audio player and play your music.

When you have finished listening, navigate back to the Bluetooth menu and turn off

BlueTooth.

To change the paired device, switch the Libra off, then on, select the BlueTooth input and repeat the above procedure with the new phone/tablet.

The Libra BlueTooth module only broadcasts for connection when first turned on from standby.

Liability limitation

Due to the large number of different BlueTooth devices provided by a multitude of different manufacturers, Leema Acoustics ltd cannot be held responsible if a device is unable to pair or function correctly with the Leema BlueTooth module.

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

We Leema Electro Acoustics Limited

of Severn Farm Industrial Estate
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: Digital Audio Interface Model Name: USB - M1

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: Nia Davies
Position: Managing Director
Done at: Leema Electro Acoustics Ltd.
On: 31/072015

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