## LEEMA ELEMENTS INTEGRATED
## MANUAL SUPPLEMENT AND ERRATA

**DO NOT RUN THIS AMPLIFIER AT HIGH LEVELS WITHOUT LOUDSPEAKERS OR SUITABLE LOADS CONNECTED TO THE LOUDSPEAKER TERMINALS. DAMAGE TO THE POWER AMPLIFIER MODULE MAY RESULT**

### Errata

1. 24/192kHz data input is only reliably available via the coaxial or USB inputs
2. The optical inputs only reliably support a data rate up to 24/96kHz

That is not to say they will not accept high data rates but reliability can only be assured up to 24/96kHz.

### Setup menu changes

**1.** The setup menu item no. 1, "DAC HD RATE" has now been removed. A complex proprietary algorithm has been incorporated in to the DAC software which allows the device to automatically extract the high data rate frequency and set the DAC accordingly.

**2.** An additional menu item "DISPLAY MODE" has been added as outlined below.

**DISPLAY MODE**

Options

1: Volume Bar        2: DAC Status

Explanation > This menu selects between the two available display layout options.
"Volume Bar" displays a conventional graphic representation of volume level, shown as a variable length rectangle extending from left to right.
"DAC Status" displays the volume level numerically in the top left corner of the display which allows room for extended information about the incoming digital stream to be shown on the lower line of the display.

### Additional IR codes for DAC control via LIPS

The Leema Elements Integrated amplifier can be set up such that it is the master device in a LIPS control chain, remotely controlling a Leema Elements Precision DAC.

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:
21=power, 0 to 7 = direct input's (optical 1 to balanced, sequentially), 16=input up, 17=input down, 84=display toggle.

## USB connection and disconnection

It is not necessary to physically disconnect the Leema Elements Integrated amplifier when turning off a connected computer, however the computer's software needs to disengage before shutdown.
The Leema Elements Integrated amplifier should be switched off first so that its USB DAC can safely un-mount from the computer's USB peripheral software.
This also ensures that no unwanted high level noise, which may be generated by the computer during the un-mounting process, can damage the loudspeakers.
The computer can now be shutdown safely.

When re-starting the system, switch on the Leema Elements Integrated amplifier first and let it complete its start sequence.
Then switch on the computer. When the boot up process is completed the computer will automatically detect the presence of the Leema Elements Integrated amplifier's USB module.
Should this detection process fail, simply disconnect either end of the USB cable for a few seconds, then re-connect to force detection.

## Windows based Computer selection.

Not all Windows based personal computers are suitable for asynchronous USB audio. Those running Windows XP in particular, which runs a number of background tasks that require a high percentage of the computers system resources to service, can be problematic.

The background tasks affect the reliability of the computer to properly address its USB ports in high speed mode, which is a requirement for high sample rate asynchronous USB audio.

These background system demands generate high latency, which is the technical term for the time delay that results between an action being called and the action actually occurring within a computer system.

Problems with the proper servicing of the USB ports manifest themselves as drop-out's, glitches and strange noises during playback.

Many of these background tasks cannot be turned off without profoundly affecting the ability of the machine to run reliably. Windows Vista and Windows 7 run fewer of these background tasks and are therefore more likely to be reliable when used for asynchronous USB audio playback, although this can be hardware dependent and is therefore not guaranteed.

Not all computer hardware is identical, even from a given manufacturer, and some machines suffer from internal resource conflicts which the operating system works around, but may stop the computer from servicing it's USB ports reliably.

The only way to ensure a computer will provide reliable operation in high speed USB mode is to test it for latency.

A small application is included on the driver installation disc provided with the Elements Integrated amplifier.

This application will run a latency test in real time on the computer and will provide a graphical representation in the form of a bar graph. Computers which demonstrate low latency will only show green columns when idle. Marginal machines will show occasional yellow columns but will probably be reliable in practice. Computers that show regular red columns are unsuitable for audio use, though they may be modified or improved by somebody with sufficient computer knowledge.

The latency checker is also available online at:-
www.thesycon.de/deu/latency_check.shtml
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After installation of the Leema USB driver, the Latency Inspector may be found in the Leema Acoustics / USB Driver for Leema USB Module folder.
*With no other programs running on the PC, launch the Latency Inspector by clicking on its icon. If the PC is good for audio use, the display will look like this:*
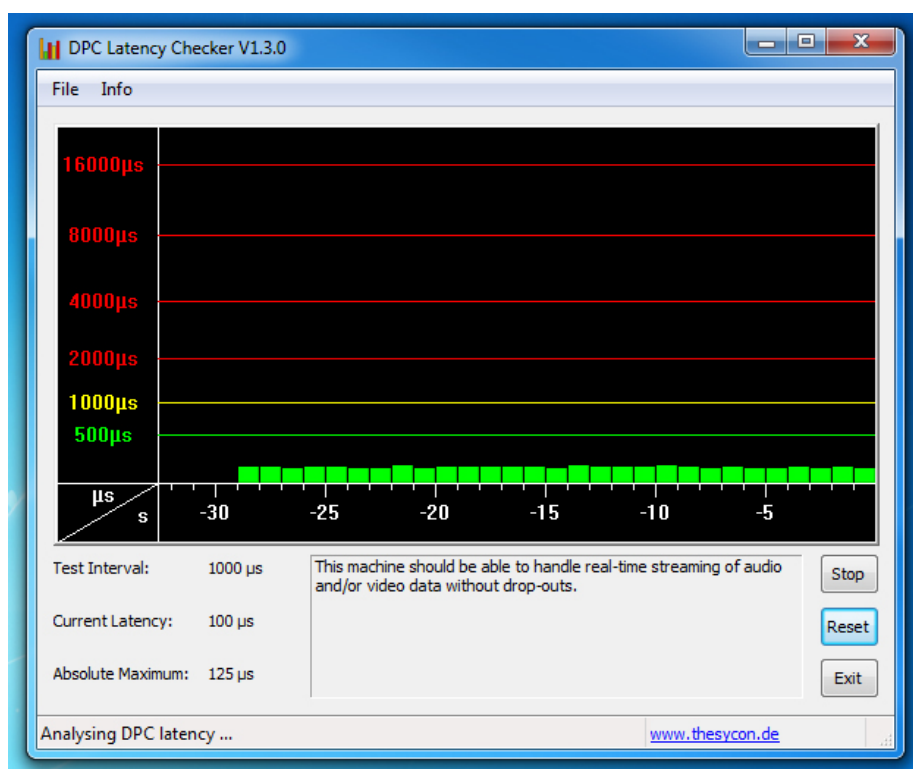


If purchasing a PC specifically for audio, or indeed video use, the Latency Checker may be copied onto a USB stick and run on machines in the computer store to check suitability.

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**LIPS Lead**

**Instructions for use:**

**Black** *Connector – Plug into CD Player*

Red *Connector – Plug Into Amplifier/Pre-Amp*

*(See manual for additional information on set-up)*