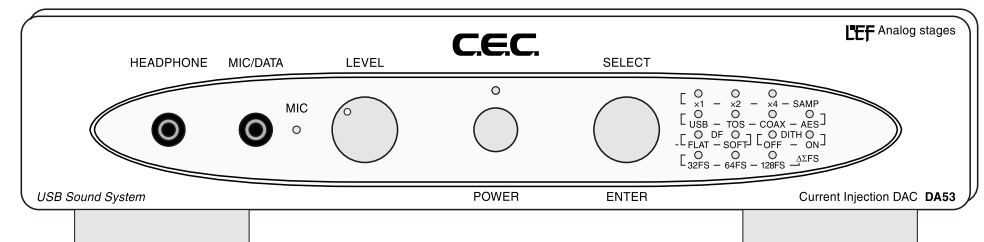




DA53

USB-Soundsystem Precision Upsampling 192 kHz / 24Bit D/A-Converter



CEC Co. Ltd.

Saitama, Japan

Owner's Manual

Introduction

Thank you for purchasing **DA53**! Please read the manual carefully in order to use your **DA53** in the best possible way.

DA53 is a state of the art upsampling D/A-Converter, also for use with computer via USB 1.1.

Included is a small section with standard HiFi-quality microphone amplifier plus A/D-Converter and a headphone amplifier. This section is intended for e.g. internet telephony.

The unique combination of current injection and **LEF** Single Ended Class A technology in only one amplifier per balanced analog output stage provides you today's best possible sound quality. The amplifier section runs without overall negative feedback. No dynamic distortions are created by the amplifier.

DA53 supports up to 48kHz input sampling frequency via USB, up to 24Bit/96kHz via TOSLINK and up to 24Bit/192kHz via SP/DIF COAX and AES/EBU. All input signals are upsampled and converted with 195 kHz/24Bit*).

DA53 is an excellent choice for high end audio equipment users looking for best sound quality, as well as for persons who like upgrading their micro hifi system (portable CD, MD..., as far as they have a digital output) or computer to real high end audio sound.

Due to **DA53**'s balanced XLR digital input and analog output, **DA53** is best choice for professional use.

DA53 is an excellent choice for computer users looking for highest level of sound quality by connecting **DA53** to the USB port. No need for a soundcard; no need for driver installation.

DA53 is a quite unique and versatile product. This manual is intended to introduce you all the available features.

*) 195 kHz is no printing error! We chose this frequency for internal operation to avoid intermodulation with any incoming sample frequency!

Specifications

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- Signal / Noise 115 dB at XLR-Output, 109 dB at RCA-Output
- THD 0.018 % at XLR (32Fs), 0.036 % at RCA
- RCA-Output: 2 Vrms
- XLR-Output: ±2 Vrms
- Power consumption: 5 W
- External dimensions (w / h / d): approx.: 217.5 x 59 x 290 mm
- Weight: approx.: 1.8 kg

Note:

- Specifications and design subject to possible modification without notice, due to improvements. Errors excepted.

Important Safety Instructions



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN THE UNIT.
NO USER-SERVICEABLE PARTS INSIDE: REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash within a triangle is intended to alert the user to the presence of dangerous voltage inside the product's enclosure that may cause an accident resulting in injury or death by fire or electrical shock.

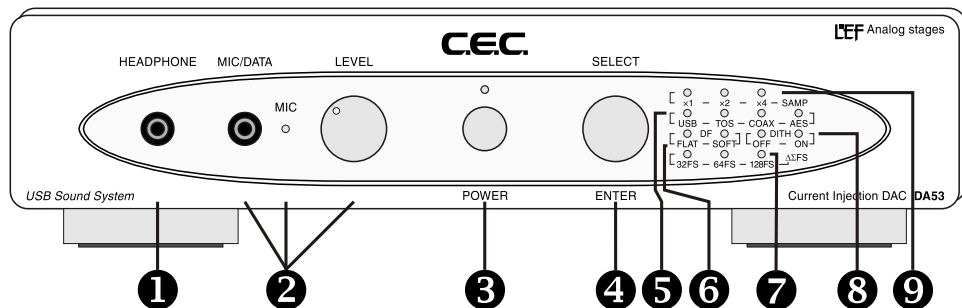


The exclamation point within a triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions.



WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE





Front Panel

USB Sound System Section

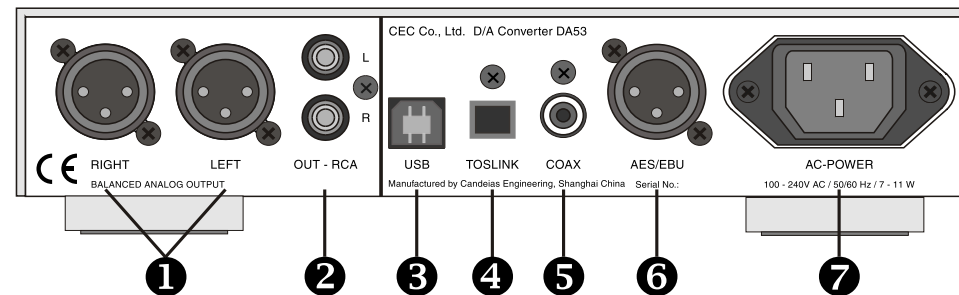
- ➊ HEADPHONE - Use this terminal for connecting a headphone with a 3.5 mm plug. Audio signals via USB can be listened to.
- ➋ MIC - Microphone input terminal for connecting a microphone with a 3.5 mm plug. By turning the level knob the microphone amplifier switches on - indicated by Mic-LED - and can be adjusted for optimum level. The microphone signal will be send via USB to a connected computer.

The microphone and headphone section is supported up to 48 kHz sample rate and is for USB sound system use only. Microphone signals can be send to computer via USB. Audio signals via USB from computer can be listened by headphone. A common use for this section is internet telephony.

- ➌ POWER - Power switch, turns the unit on / off. On is indicated by LED.

State Of The Art Digital Audio Section

- ➍ SELECT - Select different settings, indicated by LED, by pushing and rotating the Rotary Encoder. Press to choose one of the following function groups ➎ to ➑ and rotate to select your choice.
- ➎ INPUT - Select the input source. The selected input is indicated by LED.
 - USB** - USB 1.1 connection to a computer, supports up to 48 kHz sample rate.
 - TOSLINK** - Optical TOSLINK input, supports up to 96 kHz sampling frequency.
 - COAX** - Coaxial SP/DIF input, supports up to 192 kHz sampling frequency.
 - AES/EBU** - Balanced AES/EBU SP/DIF input, supports up to 192 kHz sample rate.
- ➏ DF - Select Digital Filter: **FLAT** is optimized for linear frequency, **SOFT** for best dynamic.
- ➐ ΔΣfs - Choice of oversampling rates **32fs**, **64fs** and **128fs**. 32fs offers lowest distortion.
- ➑ DITHER - Dither switches the lowest bit randomly, thus increasing openness and low level linearity.
- ➒ SAMP. - These LEDs indicate incoming sampling frequency:
x1: 32, 44.1 or 48 kHz; **x2**: 88.2 or 96 kHz; **x4**: 176.4 or 192 kHz.



Rear Panel

Analog Output

- ➊ Balanced Output - Balanced XLR analog output. Whenever a suitable receiver is available this output should be the first choice. XLR pinning as followed:
 1 = Ground
 2 = Non-inverted output, sometimes called "hot" or "+" input.
 3 = Inverted output, sometimes called "cold" or "-" input.

- ➋ RCA Output - Standard RCA output for analog signal..

Digital Connection

- ➌ USB - USB 1.1 connection to computer, supports up to 48 kHz sample rate.
- ➍ TOS-Link - Optical digital SP/DIF input, supports up to 96 kHz sampling frequency.
- ➎ COAX - Coaxial digital SP/DIF input, supports up to 192 kHz sampling frequency.
- ➏ AES/EBU - Balanced digital SP/DIF input, according to professional standard, supports up to 192 kHz sampling frequency. Whenever a suitable source is available this input should be the first choice.
 XLR pinning see ➊

Power Connection

- ➐ AC Power - Connection for the AC power cord.

Tips and Hints

- **DA53** has an integrated upsampler, a state of the art 24Bit/195kHz D/A-converter *) and a current injection analog stage with LEF output for the backside analog output connectors. Whenever a balanced XLR connection is available it is preferable to RCA.
 - Use high quality cable for connection.
 - Digital signals connected to TOSLINK, COAX or AES/EBU can be transmitted to a computer by USB 1.1, limited to 48 kHz input sampling frequency. This function might be blocked by copy protection of your source, e.g. CD-Player!
 - **DA53** offers different settings for digital filter, oversampling and dither to make your own choice. Recommended default: Set "Digital Filter" (DF) to "SOFT", "DITHER" to "ON", and "ΔΣfs" to "32fs"
 - To keep it clean use only a soft cloth and never use any solvents or abrasives. Dust and fingerprints may be removed with a soft cloth moistened only with a few drops of water.
- *) 195 kHz is not a printing error! We chose this frequency for internal operation to avoid intermodulation with any incoming sample frequency.



Cautions Regarding Handling



Precautions for use

- **Check that the operating voltage of your unit is identical with the voltage of your local power supply. The internal power supply works from 100 up to 240 Volt AC, 50 or 60 Hz.**
- Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Sometimes in summer you have faults in your local power supply due to overloading. Unplug the unit from the wall outlet when there is a thunderstorm.



This sign is intended to alert the user to disconnect the power cord from the wall outlet in dangerous situations!

Allways unplug the power cord from wall outlet by grasping the plug. Never pull the cord itself!

- Unplug the unit from the wall outlet if it is not to be used for an extended period of time.
- Unplug the unit from the wall outlet before connecting other units or opening the unit.

AC-Line

- If there is any break or cut in the AC-line cord, unplug it from the wall outlet and replace it by a new one!



Location

- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock. Leave some space around this unit for heat dissipation, especially near the heat sink on backside.



Condensation

- When this unit is brought into a warm room from previously cold surroundings or when the room temperature rises sharply, condensation may form inside, and the unit may not be able to attain its full performance. In cases like this, allow the unit to stand for about an hour or raise the room temperature gradually.



THIS SIGN PROHIBITS DISASSEMBLING!
DO NOT OPEN! NO USER-SERVICEABLE PARTS INSIDE!
Refer servicing to qualified service personnel!

Fuses

- The fuses are inside of the unit and should be changed by qualified personnel only.

Caution

- Changes or modifications to this equipment not expressly approved by CEC Co.Ltd. for compliance will void the user's warranty.