

Luxman

USB D/A CONVERTER

DA-150

Owner's Manual

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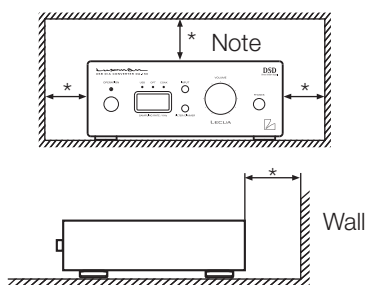
Installation place

Install this unit in a location where good ventilation and heat radiation are assured.

Especially, the installation of this unit where the direct sunlight is present, where the temperature rises excessively high such as close to a heater, or where it is humid or dusty may cause a malfunction even if heat is efficiently released. Therefore, do not install this unit in such places.

Note:

For heat dispersal, do not install this equipment in a confined space such as a book case or similar unit.



Turn off this unit when it is not used.

Depending on the condition of radio waves emitted during television broadcasting, interference fringes may appear on the television monitor, but that is not a malfunction. In such a case, turn off the unit. There may also be a case where noises are heard on the radio due to radio wave interference.

Notice when handling optical digital cables

- Do not fold the cables. For storage, wind each cable to make a coil whose diameter is approx. 15 cm or larger.
- For connection, insert the cable connectors firmly into the terminals of this unit and the other device.
- Use the cables whose each length is 3 m or less.
- When the cable connectors get dusty, wipe the dust away with a dry soft cloth before inserting into the terminals.

Cleaning

- Usually, wipe the unit with a dry soft cloth. When the dirt is hard to remove, dip soft cloth in detergent diluted 5 or 6 times with water, wring it well, and remove contaminants. Then, remove the moisture with dry cloth.
- Do not use a solvent like alcohol, benzene, thinner, or pesticide because such a substance can damage the exterior. In addition, do not let this unit contact a rubber or plastic form for a long time. That may damage the cabinet surface of the unit.

- When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.
- Before cleaning, unplug the power cord from the AC outlet.

Precautions in connecting with other components

When connecting this unit to input/output devices other than a PC/Mac such as a CD player, an SACD player, a DVD player, and a pre-main amplifier, be sure to turn off the power of this unit and all other connected devices. Failure to observe this may generate a strong noise resulting in speaker damage or cause a malfunction.

The pin-plug to be inserted in each input terminal of this unit shall be pushed in firmly. If the grounding terminal is inadequately connected, noises including hum may be generated, resulting in an adverse S/N ratio.

Protection circuit

This unit is equipped with a protection circuit that is activated upon the detection of overcurrent to protect the headphones. When the protection circuit is activated, the output to the headphones is shut off and the operation indicator blinks to show that this unit is in the muting state. When the cause to activate the protection circuit is eliminated, the blue operation indicator light comes back on and the operating state resumes. If the protection circuit is frequently activated, please consult your dealer.

Insertion and extraction of headphone plug

When the headphone (unbalanced) plug is inserted or extracted, a short circuit occurs between the L ch output and R ch output because of the structure of the headphone jack (unbalanced).

If the volume of this unit is turned up at this moment, an overcurrent flows to the headphone amplifier output and the overcurrent detection circuit becomes activated, which sets this unit to the muting state and may also cause a malfunction. Therefore, the insertion and extraction of the headphone plug shall be performed when the volume is turned down to the minimum or when there is no signal after shutting off input signals.

Repair and adjustment

When repairs or adjustments are needed, please ask the dealer where you bought the unit.

Features of This Unit

Compact chassis design

This unit is a D/A converter that has a compact body as small as B5-paper size.

USB input supports 192 kHz / 32 bit

B-type USB input terminal is installed and makes it possible to input USB digital audio signal from a PC/Mac.

The sampling frequency of up to 192 kHz and 32-bit quantization are supported.

USB input supports DSD

DSD format data can be entered from PC/Mac, or the like.

Sampling frequencies of 2.8224 MHz/5.6448 MHz is supported.

Asynchronous communication supported

The USB input with low jitter has been achieved with USB dedicated IC by asynchronous communication and PLL.

PCM1795 manufactured by Burr-Brown

For the DAC chip, this unit uses PCM1795 manufactured by Burr-Brown that is used for the LUXMAN SACD player, D-05u.

Filter selection function

There are two types of filters for PCM playback and DSD playback respectively. Two kinds of digital filters for PCM and analog FIR filters for DSD are available.

LECUA (LUXMAN Electric Controlled Ultimate Attenuator)

An electrically controlled attenuator LECUA, in which attenuation is obtained by combining resistances, is used in the headphone amplifier unit to achieve fresh sound.

Built-in headphone amplifier

A high-grade headphone amplifier circuit with discrete circuit configuration is equipped.

Low phase noise clock equipped

A clock module with high precision is equipped to reduce noise near the oscillating frequency.

7-segment LED

The sampling frequency of a digital input can be displayed on the 7-segment LED with a high level of visibility. The attenuation amount is displayed during sound volume adjustment. The dimmer function allows the brightness of the LEDs to be changed in 4 levels.

Original technologies

Our traditional round pattern board, OFC internal wiring, and original custom-made parts are fully and luxuriously used.

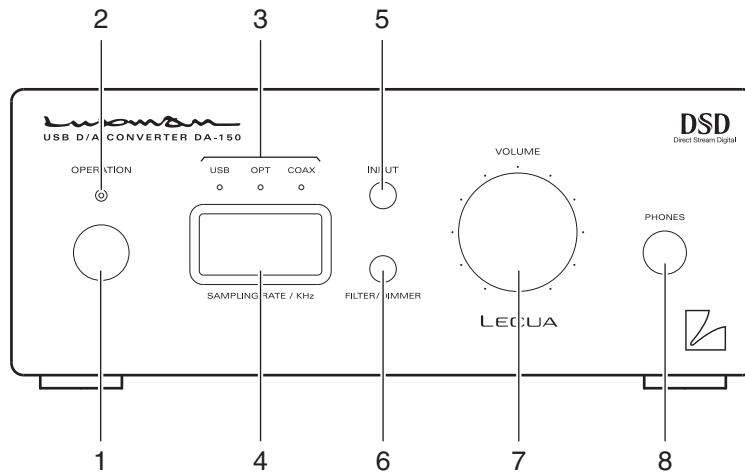
*1 Mac and Mac OS are trademarks of Apple Inc., registered in the U.S. and other countries.

*2 Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.

*3 DSD is a trademark.

*4 The described company names and product names are trademarks or registered trademarks of each company.

Front panel



1. Operation switch (OPERATION)

This switch turns on and off the power.

When wiring or connection is performed, be sure to turn off this switch.

2. Operation indicator (OPERATION)

Blinks in the time of muting mode when the operation switch is turned on and lights up when the operation state is activated afterward.

3. Input selection display LED

Turns on the input LED selected with the input switch.

When a digital signal input is not provided or the signal is not synchronized even if the signal input is provided, the LED blinks to indicate the unlock state.

4. Sampling frequency/ volume level display LED (SAMPLING RATE/VOLUME)

Displays the sampling frequency of the digital signal connected to the input terminal (USB/OPT/COAX) selected with the input selector. When a digital input is selected from USB/OPT/COAX with the input selector and the digital signal from the digital device is synchronized with this unit, the sampling frequency of the digital signal is displayed on this LED.

When a digital input is not provided or the signal is not synchronized even if the signal input is provided, the sampling frequency is not displayed and the LED of the selected input blinks to indicate the unlock state.

When playback from a PC/Mac is stopped, the sampling frequency disappears and the input LED stays on, it indicates that communication with the PC/Mac stays active. This LED also indicates the current volume level in steps of 1 dB during sound volume adjustment.

- “- - -” shows the mute state. No sound is generated.
- The minimum volume level is shown as “-87 dB”, and the maximum volume level is shown as “0 dB”.

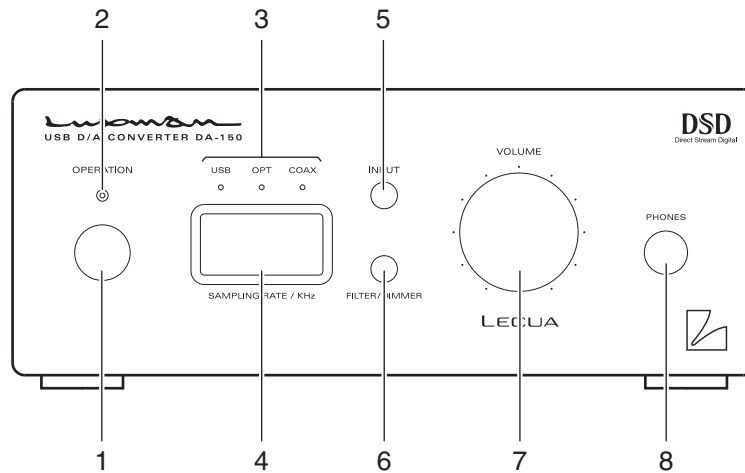
The following sampling frequencies can be displayed.

Input from the USB terminal	PCM : 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96kHz, 176.4 kHz, 192 kHz
Input from OPT/ COAX terminals	DSD : 2.8224 MHz, 5.6448 MHz : 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96kHz, 176.4 kHz, 192 kHz

First 3 digits are displayed on the LED.

Names and Functions

Front panel



5. Input selection switch (INPUT)

Selects an input device connected to each input terminal of this unit.

Every time this switch is pressed, a selected device is changed as “USB → OPT → COAX → USB ...”, and the LED of the selected device changes at the same time.

Input: Digital output from a PC/Mac, a CD player, an SACD player, a DVD player, and other such devices

6. Filter/dimmer selection switch (FILTER/DIMMER)

Selects the digital filter at PCM data playback or the analog filter at DSD file playback, and adjusts the brightness of the 7-segment LED.

(See how to set the filter and brightness on pages 9 and 10.)

7. Volume control (VOLUME)

Adjusts the sound volume of the headphones. Sound is not generated when this control is rotated counterclockwise to the end, and then, the sound volume gradually becomes higher when the control is slowly rotated clockwise.

The analog output level on the rear panel is fixed, and therefore the level is not changed even if the volume control is rotated.

8. Headphone jack (PHONES)

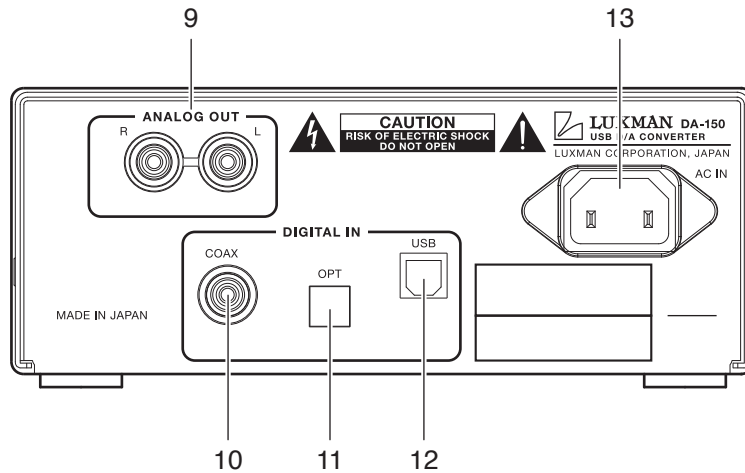
When listening to the playback sound of this unit with stereo headphones, insert the headphone standard plug in this output jack.

If the plug of your headphones is mini, use a mini-to-standard adapter that is an accessory of the headphones or available on the market.

Caution in using headphones

If the headphones are used for a long time at a high sound volume level, your hearing may be damaged.

Rear panel



9. Analog unbalance output terminals (RCA)

RCA terminals to output unbalanced playback signals from this unit. (The output level is fixed.)

10. Digital input terminal (COAX)

RCA input terminal used for the digital input signals from such device as a CD player equipped with digital output terminals using a coaxial digital cable.

The terminal supports to the following signals.

Sampling frequency: 32 kHz, 44.1 kHz, 48 kHz,
88.2 kHz, 96 kHz,
176.4 kHz, 192 kHz

Number of quantization bits: 16-bit, 20-bit, 24-bit

11. Digital input terminal (OPT)

TOS-LINK input terminal used for the digital input signals from such device as a CD player equipped with digital output terminals using an optical digital cable.

The terminal supports to the following signals.

Sampling frequency: 32 kHz, 44.1 kHz, 48 kHz,
88.2 kHz, 96 kHz,
176.4 kHz, 192 kHz

Number of quantization bits: 16-bit, 20-bit, 24-bit

12. USB digital input terminal (USB)

USB (B-type) input terminal used for the digital input signal from such device as a PC/Mac to be connected with a USB cable.

The terminal supports to the following signals.

- PCM signal

Sampling frequency:	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
Number of quantization bits:	16-bit, 24-bit, 32-bit
- DSD signal

Sampling frequency:	2.8224 MHz, 5.6448 MHz
Number of quantization bits:	1 bit

When the OS is Windows, the dedicated driver software needs to be downloaded from LUXMAN website and installed.

Refer to "Driver Installation Manual" on the LUXMAN website for detailed information.

With Mac, this unit is automatically recognized.

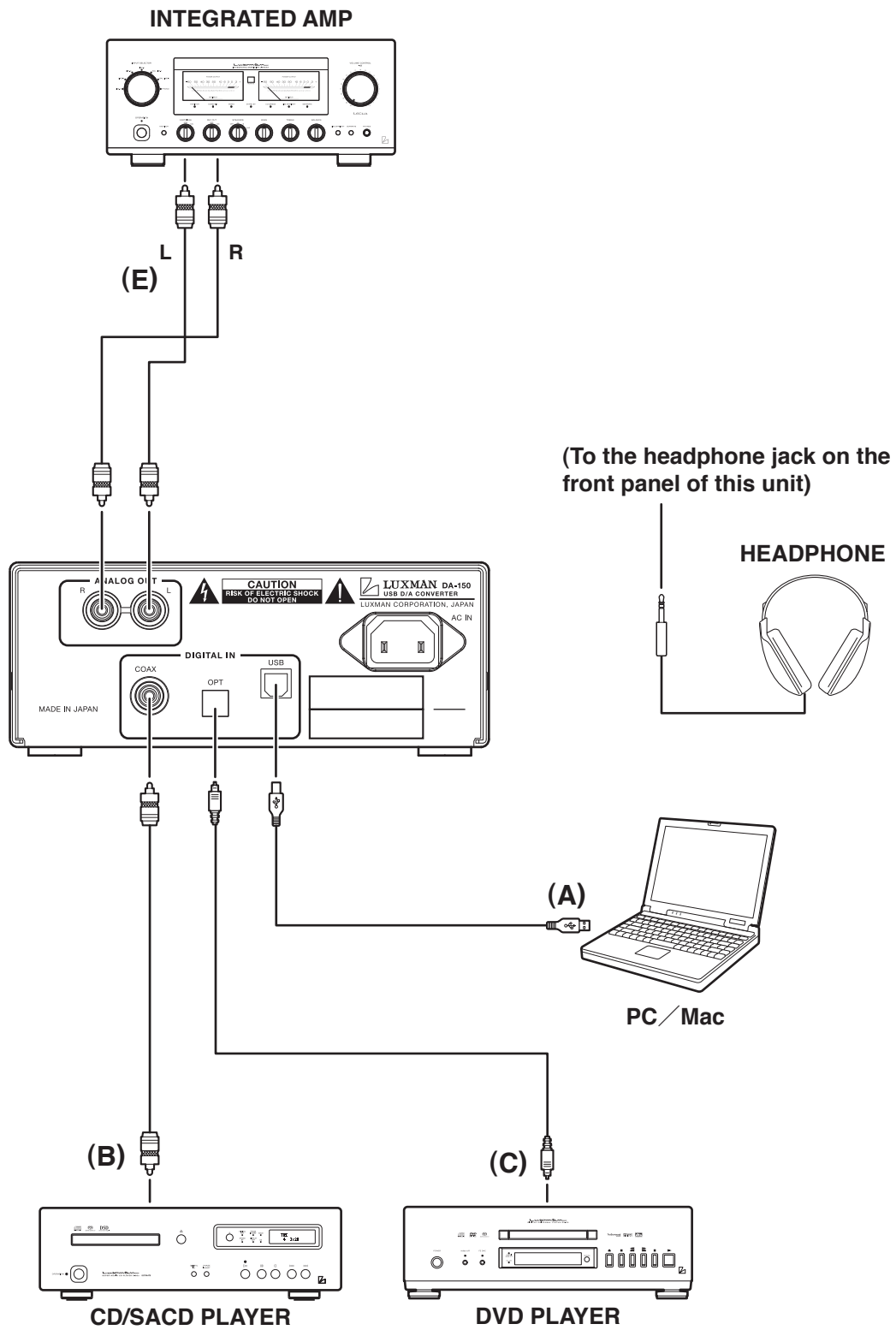
Caution:

Connection between a PC and this unit with use of a USB cable shall not be performed before the installation of this driver software is completed. Failure to observe this may cause malfunction.

13. AC inlet (AC IN)

Connects the accessory power cable to supply the power from the AC outlet on the wall.

Connections



Before connecting

Before connecting other devices, connect the jack side (where two holes are provided) of the accessory power cable to the AC inlet of this unit.

When connecting, turn off the power supply of this unit and the power supplies of auxiliary devices to prevent unexpected accidents that may be caused by noise.

How to connect power supply

Use the accessory power cable to insert the AC plug in an outlet on the wall in the listening room.

How to connect input devices

1. Digital connection from a PC/Mac (Refer to the connection diagram (A).)

Connect between the USB (A-type) terminal of the PC/Mac and the USB (B-type) terminal of this unit with a USB cable. When the OS is Windows, the dedicated driver software needs to be downloaded from LUXMAN website and installed.

Refer to "Driver Installation Manual" on the LUXMAN website for detailed information.

With Mac, this unit is automatically recognized.

Caution:

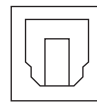
Connection between a PC and this unit with use of a USB cable shall not be performed before the installation of this driver software is completed. Failure to observe this may cause malfunction.

2. Digital connection from such device as a CD player (Refer to the connection diagrams (B) and (C).)

Connect between the (coaxial or optical) digital output terminal of a CD player, an SACD player, a DVD player, and other such devices and the digital input terminal (COAX/OPT) of this unit with a coaxial digital cable and an optical digital cable.

This terminal is a shutter type. Direct the cable connector correctly when inserting the cable into the terminal. If the cable connector is inserted forcibly to the wrong direction, the terminal may be deformed, and the shutter may not be able to close even after cable disconnection.

Upper side



Lower side

The optical terminal is directed as illustrated.

How to connect output devices

1. Unbalanced connection with such device as an integrated amplifier (Refer to the connection diagram (E).)

Connect between the analog unbalanced output terminals (RCA) of this unit and the unbalanced input terminals of a sound-volume-adjustable device such as an integrated amplifier using two RCA pin-plug cables.

The analog output level of this unit is fixed, and therefore the volume control on the front side does not function. Be sure to adjust the sound volume at the connected device side.

Operations

This unit is a D/A converter. Any operations for sound playback are performed by such input device as a PC/Mac or CD player connected to the input terminals.

Before operation

1. Ensure that the connections are correctly performed. (Normal playback cannot be achieved with wrong connections of R and L.)
2. After ensuring that the volume control has been rotated counterclockwise to the end and the sound volume is at the minimum level, press the operation switch to turn on the power of this unit.

Sound playback of a device connected to a digital input terminal (analog output)

1. Select an input device to be played back with the input selector. (USB/OPT/COAX)
2. When the input device starts playback, the sampling frequency of the playback signal is displayed.

If the digital signals input to the unit are abnormal, the selected input LED blinks to indicate the unlock state, and signals will not be output.

3. When an integrated am-plifier or the like is connected to the analog unbalanced output terminals (RCA), adjust the sound volume with the volume control of the output device.

How to use the headphone output

Insert the standard plug of headphones into the headphone jack (PHONES) on the front panel of this unit after the volume control is rotated counterclockwise to the end.

Start the playback of the input device, and rotate the volume control slowly clockwise to your favorite sound volume.

Whenever the power is turned on and off, the input selector is changed over, or the headphone plug is connected or disconnected, be sure to rotate the volume control counterclockwise to the end to set the sound volume to the minimum.

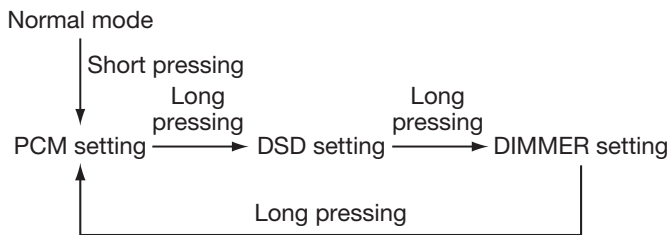
If the headphones are used for a long time at a high sound volume level, your hearing may be damaged.

Filter/dimmer setting methods

The following settings can be performed with the filter/dimmer switch:

- (1) Digital filter at PCM data playback (2 types)
- (2) Analog filter at DSD data playback (2 types)
- (3) 4-step brightness adjustment of 7-segment LED (dimmer setting)

Each setting mode can be shifted in turn by shortly pressing (less than 1 second) the filter/dimmer switch and then pressing long (approx. 2 seconds) the switch after the digital filter setting mode is activated.



These settings are stored on the flash memory even when the power is turned off.

(1) Digital filter setting (PCM)

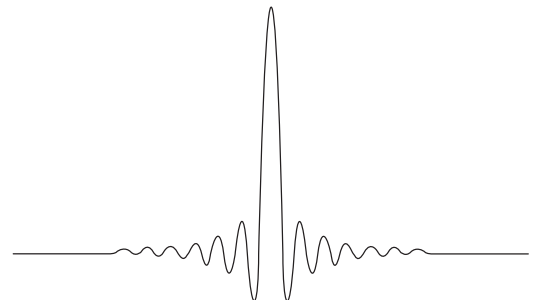
The interpolation function of the 32-bit digital filter can be changed while the PCM data is played back.

When the filter/dimmer switch is shortly pressed (less than 1 second), the digital filter setting mode is activated and the current setting is displayed. Then, shortly pressing the filter/dimmer switch toggles between P-1 and P-2 alternatively. Select a filter depending on your taste. The sound quality can be changed.

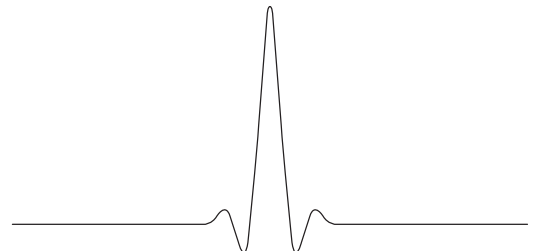
There are two types of filters, P-1 and P-2, and the impulse response of the interpolation function is shown in the diagrams at right.

Without any operation for 5 seconds after selection, the selection is determined, and the mode returns to normal. If you want to change the analog filter during DSD playback and the dimmer after setting the digital filter for PCM, perform the long pressing (approx. 2 seconds) to determine the selection. Then, the setting mode goes to next.

P-1 (sharp roll-off)



P-2 (slow roll-off)



Operations

(2) Analog filter setting (DSD)

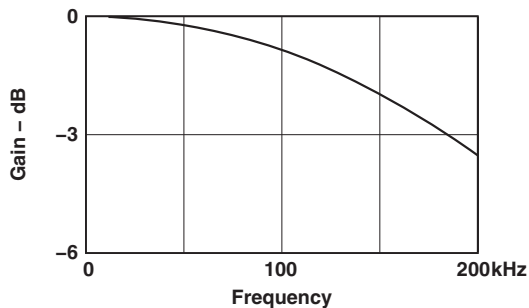
The analog FIR filter at DSD file playback is set.

When the filter/dimmer switch is shortly pressed (less than 1 second) and pressed long in the digital filter setting mode, the analog filter setting mode is activated and the current setting is displayed. Then, shortly pressing the filter/dimmer switch toggles between d-1 and d-2 alternatively. Select a filter depending on your taste. The sound quality can be changed.

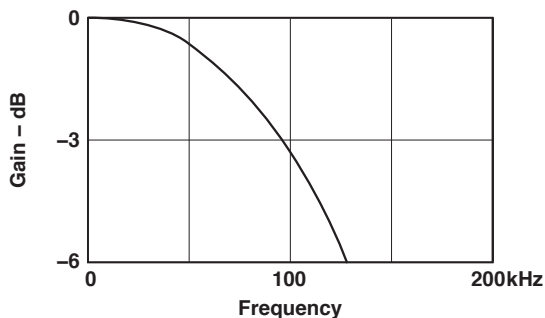
There are two types of filters, d-1 and d-2, and the filter characteristics are shown in the diagrams below.

Without any operation for 5 seconds after selection, the selection is determined, and the mode returns to normal. If you want to change the dimmer after setting the analog filter for DSD, perform the long pressing (approx. 2 seconds) to determine the selection. Then, the setting mode goes to the next.

d-1 (normal analog FIR filter)



d-2 (high attenuation analog FIR filter)

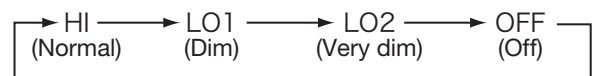


Depending on the filter selection, there is a difference in sound volume. When d-1 is selected, the output voltage is 1.2 Vrms. When d-2 is selected, the output voltage is 1.7 Vrms.

(3) Dimmer setting

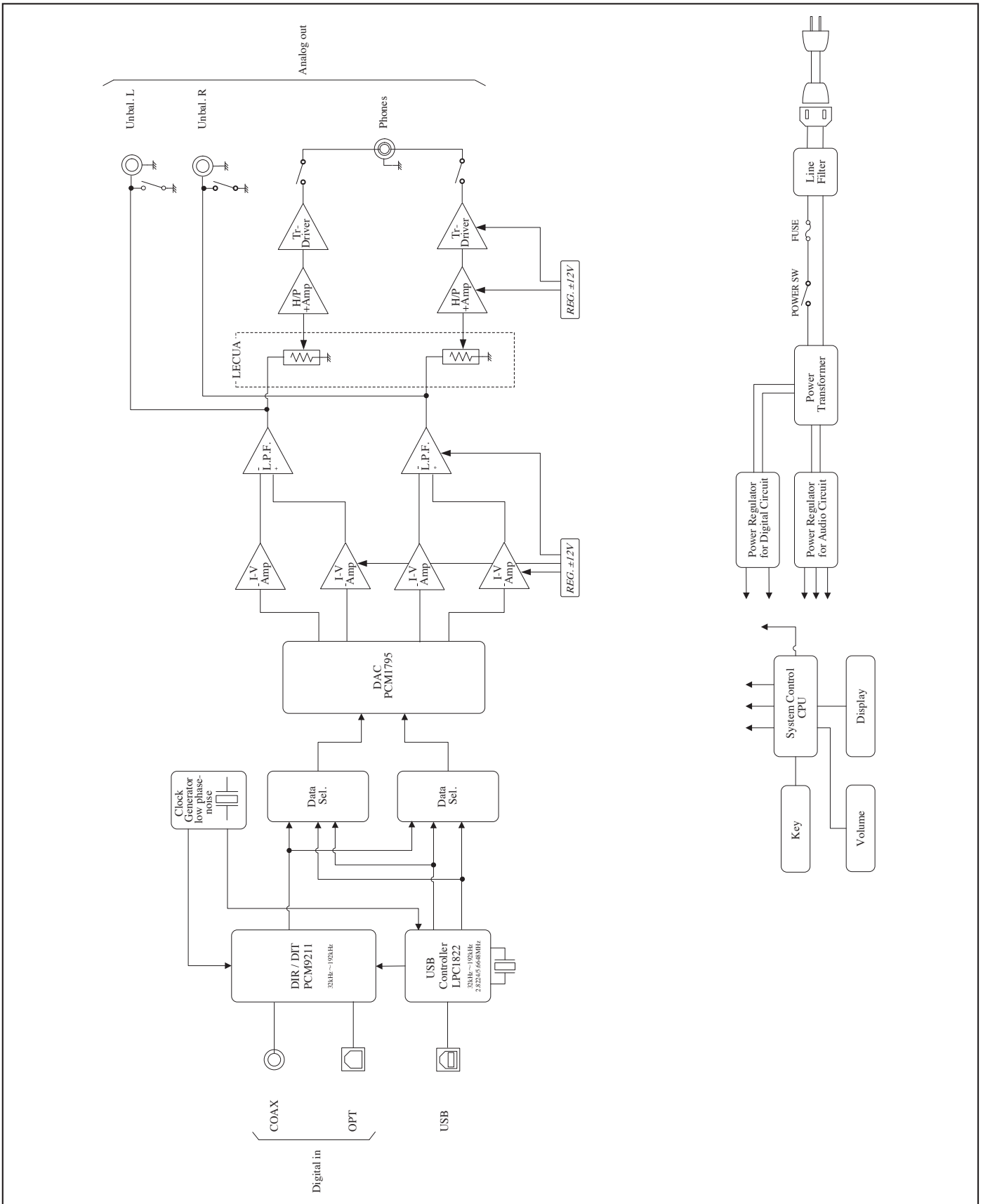
The brightness of the 7-segment LED is adjusted. The brightness can be adjusted in 4 stages from no light to normal lighting on.

When the filter/dimmer switch is further pressed long (approx. 2 seconds) in the analog filter setting mode, the dimmer setting mode is activated and the current setting is displayed. Then, shortly pressing the filter/dimmer switch changes the brightness as follows: normal (HI) → dim (LO1) → very dim (LO2) → no light (OFF) → normal (HI) ...



Without any operation for 5 seconds from selection, the selection is determined, and the mode returns to normal.

Block Diagram



Specifications

Format	2-channel, USB D/A converter		
Ambient operating temperature	+5 °C to +35 °C		
Audio output characteristics	Output voltage / output impedance:	UNBALANCE terminal (RCA terminal)	2.5 Vrms/300 Ω
		For DSD (see page 10)	1.2 Vrms (d-1) 1.7 Vrms (d-2)
		PHONE terminal (Standard plug)	130 mW + 130 mW (600 Ω) 400 mW + 400 mW (2 Ω) 200 mW + 200 mW (16 Ω)
	Frequency response:	4 Hz to 20 kHz (+0, -0.5 dB) 2 Hz to 50 kHz (+0, -3.0 dB)	
	Total harmonic distortion:	0.0012 %	
	S/N ratio:	120 dB	
	Dynamic range:	118 dB	
	Channel separation:	109 dB	
Digital input	Coaxial digital input:	0.2 to 2.5 Vp-p	
	Optical digital input:	-14.5 to -24 dBm	
	USB input: (Applicable OS)	Microsoft Windows Vista or later, Mac OS X10.7 or later	
	Sampling frequency:	OPT/COAX input:	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz (16-bit, 20-bit, 24-bit)
	USB input	PCM: 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz (16-bit, 24-bit, 32-bit) DSD: 2.8224 MHz, 5.6448 MHz (1-bit)	
Supplied functions	Front panel	<ul style="list-style-type: none"> • Power switch • Input LED • Filter/dimmer setting switch • Sound volume 	<ul style="list-style-type: none"> • Input selector switches • Sampling frequency LED • Headphone output terminal
	Rear panel	<ul style="list-style-type: none"> • AC inlet • Analog output terminals (UNBALANCE) 	<ul style="list-style-type: none"> • Digital input terminals (USB/OPT/COAX)
Accessories	<ul style="list-style-type: none"> • Power cable • Owner's Manual (This document) • Safety cautions 		
Power supply	230 V ~ (50 Hz)		
Power consumption	16 W		
Weight (Main unit)	3.3 kg		
Dimensions	182 (W) x 73 (H) x 277 (Knobs (12mm) and terminals (8mm) included) (D) mm		

* Specifications and the appearance are subject to change without notice.

Before Asking for Repair Services

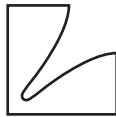


While the unit is used, an unusual phenomenon may be confused as a malfunction for a certain reason. Prior to asking our official sole distributor of your country for repair services, please check the table below and read the operating instructions for the subsidiary devices. If the cause of the malfunction cannot be identified, please contact your dealer. When we have once accepted your request for repair services, inspection fees and traveling expenses may be claimed even though the unit is found to be normal.

Besides, such personal computer as a PC/Mac connected to the unit and the software that operates on the PC/Mac (operations and settings included) are not supported.

Problem	Cause/Solution	Ref. page
No power is supplied even though the operation switch is pressed.	<ul style="list-style-type: none"> Connect the power cable to the AC inlet (AC IN) and the AC outlet firmly. 	7
No sound is generated. / Sound volume is too low.	<ul style="list-style-type: none"> Connect the digital devices, amplifier, speakers, and headphones correctly. 	6 - 7
	<ul style="list-style-type: none"> Set the input selector to the source to be played back. 	8
	<ul style="list-style-type: none"> When you are listening to the sound of headphones, adjust the sound volume with the volume control of the main unit. 	8
	<ul style="list-style-type: none"> When you are listening to a sound with the fixed analog output, adjust the sound volume with the volume control of the connected amplifier. 	8
	<ul style="list-style-type: none"> If the USB is selected as an input source, select this unit (DA-150) as the output destination by configuring the sound setting of a PC/Mac. 	Refer to the instruction manual of the PC/Mac or the software in use.
	<ul style="list-style-type: none"> If the unit (DA-150) cannot be selected even when trying the solution above, reconnect the USB cable. 	
	<ul style="list-style-type: none"> If the USB is selected as an input source, adjust the sound volume by configuring the sound setting of a PC/Mac. 	
		<ul style="list-style-type: none"> If the USB is selected as an input source, adjust the sound volume on a player software of a PC/Mac.
	<ul style="list-style-type: none"> Ensure that this unit supports the sampling frequency and the number of quantization bits of the played back digital signals. 	5
	<ul style="list-style-type: none"> Check to see whether the selected input LED blinks and the unlock state is indicated. (When the digital signal from the digital device is not synchronized with this unit, the source may not be played back.) 	5
Hum noises (boon or zzz noise) are generated.	<ul style="list-style-type: none"> Insert the RCA pin-plugs of the line cables firmly. 	7
	<ul style="list-style-type: none"> Induction noise may be picked up from the power transformer of another device. Install this unit distantly from the other device. 	
	<ul style="list-style-type: none"> When you are listening to the sound of headphones, arrange the headphone cable and the power cable so that they are not laid too close. 	

This unit may not work normally when the unit is subject to external influence such as static electricity. In such a case, the unit can work normally by unplugging the power cable once and plugging it again. If the problem is not solved, please contact your dealer or our service center.



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