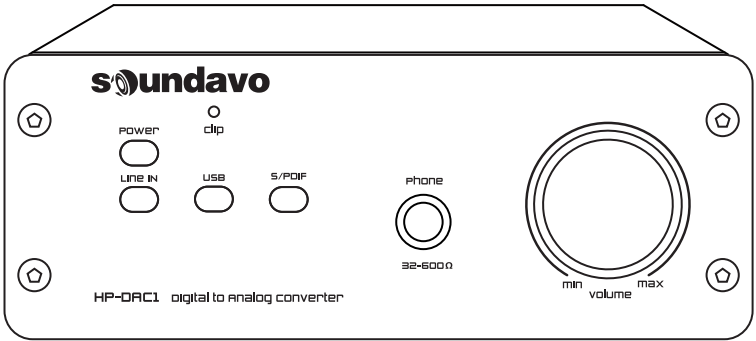




HP-DAC1

DIGITAL
TO ANALOG CONVERTER



DEAR CUSTOMER


Thank you for purchased **Soundavo** product. Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

WARNING



- 1. Do not place or install this device in an area where it can be exposed to excessive amounts of dust, humidity, oil, smoke, or combustible vapors.
- 2. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.
- 3. Do not install near any source of heat, including other units that may produce heat.
- 4. Do not expose this device to excessively high temperatures. Do not place it in, on, or near heat sources, such as a fireplace, stove, radiator, etc. Do not leave it in direct sunlight
- 5. Do not touch the device, the power cord, or any other connected cables with wet hands.
- 6. This device ventilates excessive heat through the slots and openings in the case. Do not block or cover these openings. Ensure that the device is in an open area where it can get sufficient airflow to keep from overheating.
- 7. Only clean unit with a dry cloth.
- 8. Unplug unit during lightning storms or when not used for an extended period of time.
- 9. Protect the power cord from being walked on or pinched, particularly at the plugs.
- 10. Use unit only with accessories specified by the manufacturer.
- 11. Refer all servicing to qualified personnel.

CAUTION

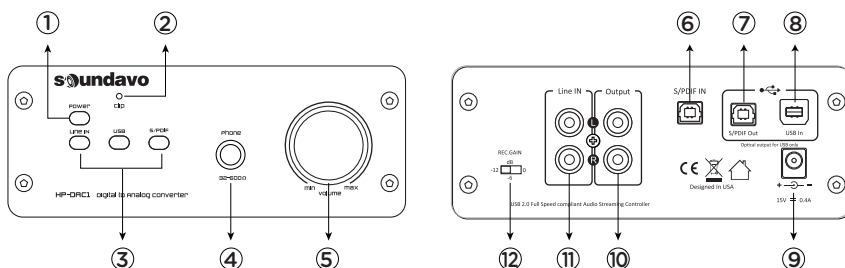
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



FRONT PANEL



1. Power On/Off switch
2. Clip LED: Indicates overload and prompts you to lower the REC.GAIN switch (rear panel) to a lower gain level.
3. Input selector switch: Line IN, USB, S/PDIF.
4. Stereo headphones socket (1/4" jack):
If this socket is used, there is no signal at the RCA output.
5. Volume control.
6. S/PDIF In (optical): Digital input for signals at up to 96 kHz sampling rate of devices such as CD or DVD players.
7. S/PDIF Out (optical): The S/PDIF output supports digital surround multichannel formats such as AC3 / DTS. The volume can not be adjusted on the HP-DAC1 and must be controlled on the external signal source.
8. USB In: Connect computer for digital content playback to the USB input.
9. Connector for external power supply (supplied) that must provide 15 V \equiv at 800 mA (positive pole inside $\ominus \text{---} \bullet \text{---} \oplus$). For USB operation only, the power supply via the USB port (5 V \equiv) is sufficient.
10. Stereo RCA connector for analogue signal output.
11. Stereo RCA connector for analogue signal input.
12. REC.GAIN: Switch to adjust the input sensitivity to the signal source (0 dB, -6 dB, -12 dB).

USING THE PRODUCT

- 1. Connect an analogue signal source whose signals you want to digitize and / or listen to via headphones to the Line IN jacks (11).
- 2. Connect the S/PDIF Out socket (7) or the USB port (8) to the digital inputs of the devices to which the signals are to be applied.
- 3. Connect digital signal sources whose signals you want to convert to analogue and / or listen to via headphones, to the optical S/PDIF IN socket (6) or the USB port (8).
- 4. Connect the output sockets (10) to the analogue inputs of the devices to which the signals are to be applied.
- 5. Connect stereo headphones to the 1/4" phone jack (4). The recommended head-phone impedance is between 32 Ω and 600 Ω.
- 6. Connect the power supply cable to the 5 V \equiv 0.8 A socket (9). Plug the power adapter into a properly wired power outlet.
- 7. Use the input selector switches (3) to select the desired input.
- 8. Adjust the volume of the headphones output with the volume control (5).
- 9. Set the input sensitivity with the REC.GAIN switch (12) according to the signal strength. When the clip LED (2) lights up, set the switch to a lower level (-6 or -12).

SPECIFICATIONS

S/PDIF playback resolution	24 bit / 96 kHz (max.)	
USB playback & recording resolution	16 / 24 bit @ 32 / 44.1 / 48 / 96 kHz	
Frequency response	20 Hz – 20 kHz (\pm 0.5 dB)	
Signal-to-noise	-95 dB (A-weighted) / line out (RCA)	
Max. line output level	7.5 Vrms (THD <1 %)	
Line output Impedance	100 Ω	
Total harmonic distortion	Line input	< 0.01 %
	Digital input	< 0.05 %
Headphones output level	1 % THD @ 1 kHz (max.), 224 mW (32 Ω), 241 mW (56 Ω), 130 mW (300 Ω), 76 mW (600 Ω)	
Operating voltage	15 V \equiv / 0.8 A / 12 W	
Dimensions (W × H × D)	150 × 57 × 141 mm	
Weight	approx. 900 g	

COMPUTER CONNECTION AND SETTINGS

When you use your computer as the input source of the HP-DAC1, you need to make sound output setting appropriately.

<Memo>:

When you use an external digital device as the input source, you do not need to make sound setting of your computer, however, USB connection is required to power the HP-DAC1.

Computer requirement

You can connect a computer that satisfies the following requirement.

- A USB 2 port is provided.
- OS: Windows XP or later, Mac OS X

Connection

Connect the HP-DAC1 and your computer using the supplied USB cable.

After making connection, the computer recognizes the HP-DAC1 and automatically adds it to the list of sound output devices.

<Memo>:

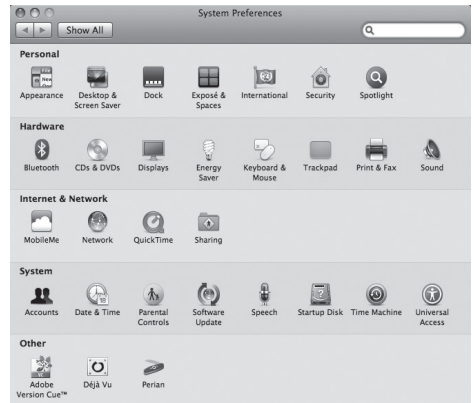
- The HP-DAC1 gets power (USB bus power) from a computer. Therefore, USB-connect the HP-DAC1 to your computer that is turned on whenever you use the HP-DAC1 regardless of the input source.
- To get stable power supply, connect the USB cable directly to a USB port of your computer. The use of USB hubs is not recommended.

Basic computer setting

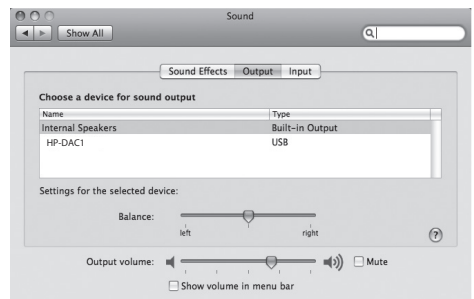
The following describes how to set the HP-DAC1 as the device for sound output of a computer for each OS.

• Mac OS

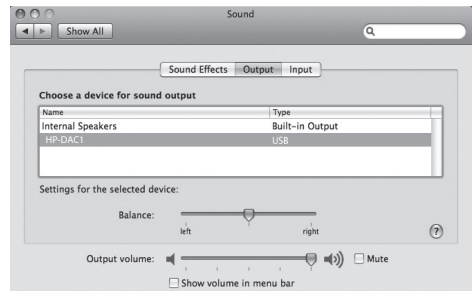
1) Select "System preferences" from the Apple drop-down menu.



2) Select "Sound" to open the "Sound" window and select "Output" tab at the top of the window.



3) Select "HP-DAC1" in the list box.



COMPUTER CONNECTION AND SETTINGS

• Windows Vista

- 1) Select "Hardware and Sound" from the Control panel.
- 2) Select "Sound" to open the "Sound" window.
- 3) Select "Playback" tab.
- 4) Select "SPDIF interface HP-DAC1" and click the "Set Default" button, followed by the "OK" button.



• Windows XP

- 1) Select "Sound and Audio Device Properties" from the Control panel.
- 2) Select "Audio" tab in the "Sound and Audio Device Properties" window.
- 3) Select "HP-DAC1" as the default device for playback and click the "OK" button.



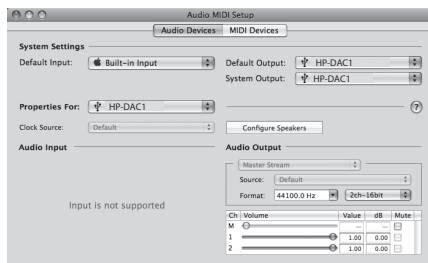
Detail settings

By making sound output settings on a computer appropriately, you may be able to monitor the sound better.

Depending on a computer OS, the setting window differs. The following briefly introduces the setting window for each OS. See the computer manual or help screen for details.

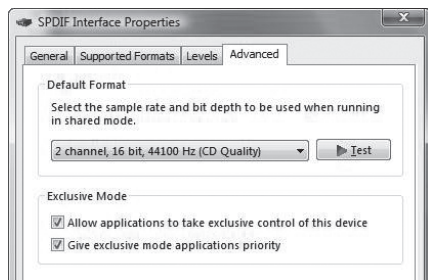
• Mac OS

The "Audio MIDI setting" utility in the Utility folder in the Application folder allows you to select the sampling rate, bit rate, levels of left and right channels, etc.



• Window Vista

Clicking the "Property" button on the "Sound" window opens the window where you can select the sampling rate, etc.



- Windows XP Clicking the "Advanced" button on the "Sound and Audio Device Properties" window opens the setting window. Note that, with Window XP, the sampling rate conforms to the setting on an software application.

Computer sound volume

By setting the sound volume at maximum, you can get the optimum sound quality.